transmitters in the Detroit urban area that transmit on channels in the 482-488 MHz range.

(iii) Tables E-5 and E-6 apply to all control transmitters except those to which Tables E-3 and E-4 apply.

(2) Adjacent channel protection. The ERP of control transmitters must not exceed the limits in Table E-7. The limits depend upon the height above average terrain of the control transmitter antenna and the distance between the control transmitter and the nearest protected TV station location listed in this paragraph. The protected TV station locations are as follows:

Control Transmitter Frequency Range	Protected TV Station Location			TV Channel
470-476 MHz	Hanover, NH	43°42'30"	72°09'16"	(15)
	Madison, WI	43°03'01"	89°29'15"	(15)
	Champaign, IL	40°04'11"	87°54'45"	(15)
	San Diego, CA	32°41'48"	116°56'10"	(15)
	Lancaster, PA	40°15'45"	76°27'49"	(15)
	Parkersburg, WV	39°20'50"	81°33'56"	(15)
476-482 MHz	South Bend, IN	41°36'20"	86°12'44"	(16)
	Pittsburgh, PA	40°26'46"	79°57'51"	(16)
	Mt. Pleasant, MI	43°34'24"	84°46'21"	(14)
	Scranton, PA	41°10'58"	75°52'21"	(16)
482-488 MHz	Hanover, NH	43°42'30"	72°09'16"	(15)
	Fort Wayne, IN	41°05'35"	85°10'42"	(15)
488-494 MHz	Salisbury, MD	38°24'15"	75°34'45"	(16)
494-500 MHz	Philadelphia, PA	40°02'30"	75°14'24"	(17)
500-506 MHz	Washington, DC	38°57'49"	77°06'18"	(20)
506-512 MHz	Harrisburg, PA	40°20'44"	76°52'09"	(21)

(c) Los Angeles area. This paragraph applies only to control transmitters in the Los Angeles urban area that utilize an antenna height of 457 or more meters (1500 or more feet) above mean sea level. The ERP of such transmitters must not exceed the following limits:

Antenna height AMSL in meters (feet)	ERP (Watts)
457 (1500) to 610 (2000)	155
611 (2001) to 762 (2500)	100
763 (2501) to 914 (3000)	70
915 (3001) to 1067 (3500)	50
1068 (3501) to 1219 (4000)	40
1220 (4001) to 1372 (4500)	30
1373 (4501) and above	25

Table E-10 - Maximum ERP (Watts) for Base Transmitters (HAAT 152 meters or less)

Distance to Protected TV Station in kilometers (miles)	Antenna Height Above Average Terrain in meters (feet)									
	15 (50)	30 (100)	46 (150)	61 (200)	76 (250)	91 (300)	107 (350)	122 (400)	137 (450)	152 (500)
261 (162)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
257 (160)	1000	1000	1000	1000	1000	1000	1000	1000	1000	800
249 (155)	1000	1000	1000	1000	1000	875	775	700	625	575
241 (150)	1000	1000	950	775	725	625	550	500	450	400
233 (145)	850	750	650	575	500	440	400	350	320	300
225 (140)	600	575	465	400	350	300	275	250	230	225
217 (135)	450	400	335	300	255	240	200	185	165	150
209 (130)	350	300	245	200	185	160	145	125	120	100
201 (125)	225	200	170	150	125	110	100	90	80	75
193 (120)	175	150	125	105	90	80	70	60	55	50

See § 22.659(b)(3). This table applies for antenna heights of 152 meters (500 feet) or less above average terrain. For antenna heights between those in the table, use the next higher antenna height. For distances between those in the table, use the next lower distance.

470-512 MHZ TRUNKED MOBILE OPERATION

§ 22.651 470-512 MHz channels for trunked mobile operation.

The following channels are allocated for assignment to transmitters providing trunked public mobile service within the specified urban areas. All channels have a bandwidth of 20 Khz and are designated by their center frequencies in MegaHertz.

Houston

488.0125 .....491.0125	488.0875 .....491.0875
488.0375 .....491.0375	488.1125 .....491.1125
488.0625 .....491.0625	488.1375 .....491.1375

New York - Northern New Jersey

473.0125 .....479.0125	473.1625 .....479.1625
473.0375 .....479.0375	473.1875 .....479.1875
473.0625 .....479.0625	473.2125 .....479.2125
473.0875 .....479.0875	473.2375 .....479.2375
473.1125 .....479.1125	473.2625 .....479.2625
473.1375 .....479.1375	473.2875 .....479.2875

§ 22.653 Eligibility.

Only licensees already authorized to provide trunked mobile service or their successors in interest are eligible to apply for additional use of these channels for trunked mobile service, and then only in the urban areas already authorized.

§ 22.655 Channel usage.

The FCC is redesignating the public mobile channels in the 470-512 MHz range from trunked mobile operation to point-to-multipoint operation as the demand for trunked mobile service decreases.

(a) The licensees in each market shall measure channel usage at least once every 3 months. These measurements shall be reported to the FCC within 30 days. Measurements shall be taken during the busiest 12-hour periods on 3 days (within a 7-day period) having normal usage. The information must be reported separately for each of the 3 days selected, must be reported by dates, and must disclose the following:

(1) The number of mobile units in service during each of the days specified;

(2) The number of calls completed each hour;

(3) The total number of minutes during each hour that the channels were utilized for communications by the mobile units;

(4) The average channel usage for the busiest hour for the 3 days measured; and

(5) Any additional information that more accurately reflects channel usage.

(b) If the measured probability of blocking decreases below 25%, the FCC will redesignate channels not needed to maintain blocking at 25% or less. The number of channels needed to maintain blocking below 25% will be determined from the channel usage reports and the Erlang C tables.

(c) Although two or more channels are necessary to provide trunked service, the FCC may, pursuant to this section, reduce to one the number of channels assigned. In such cases, the licensee may provide non-trunked two-way public mobile service on the one remaining channel.

§ 22.657 Transmitter locations.

The purpose of the rules in paragraphs (a) and (b) of this section is to define the areas in which the 470-512 MHz channels are allocated for public mobile use. The purpose of the rules in paragraphs (c) through (f) of this section is to reduce the likelihood that interference to television reception from public mobile operations on these channels will occur. The protected TV station locations specified in paragraphs (d), (e)(1) and (f) of this section are the locations of record as of September 1974, and these do not change even though the TV stations may have been subsequently relocated.

(a) Base transmitter locations. Base transmitter locations must be within 80 kilometers (50 miles) of the designated locations in this

Table E-11 - Maximum ERP (Watts) for Base Transmitters (HAAT more than 152 meters)

Distance to Protected TV Station in kilometers (miles)	Antenna Height Above Average Terrain in meters (feet)					
	152 (500)	305 (1000)	457 (1500)	610 (2000)	762 (2500)	914 (3000)
261 (162)	1000	501	282	170	110	71
241 (150)	400	209	110	60	36	23
225 (140)	225	102	50	28	16	10
209 (130)	100	48	21	11	7	5
193 (120)	50	19	9	5	3	2

See § 22.659(b)(3). This table is for antenna heights of more than 152 meters (500 feet) above average terrain. For intermediate values of height and/or distance, use linear interpolation to obtain the maximum permitted ERP.

paragraph. Mobile transmitters must not be operated at locations more than 129 kilometers (80 miles) from the designated locations in this paragraph.

Urban area	N. Latitude	W. Longitude
Houston, TX	29°45'26"	95°21'37"
New York, NY - NE NJ	40°45'06"	73°59'39"

(b) Mobile area of operation. Mobile transmitters must not be operated at locations more than 48 kilometers (30 miles) from all associated base stations.

(c) Protection from intermodulation interference. Base transmitter locations must be at least 1.6 kilometers (1 mile) from the current main transmitter locations of all TV stations transmitting on TV channels separated by 2, 3, 4, 5, 7, or 8 TV channels from the TV channel containing the frequencies on which the base station will transmit. This requirement is intended to reduce the likelihood of intermodulation interference.

(d) Adjacent channel protection from mobile transmitters. Base transmitter locations must be at least 145 kilometers (90 miles) from the applicable protected TV station locations specified in this paragraph. This requirement is intended to provide a 0 dB minimum desired to undesired signal strength ratio at the Grade B contour of an adjacent channel TV station.

Mobile Transmitter Frequency Range	Protected TV Station Location			TV Channel
470-476 MHz	Lancaster, PA	40°15'45"	76°27'49"	(15)
476-482 MHz	Scranton, PA	41°10'58"	75°52'21"	(16)

(e) Co-channel protection from mobile transmitters. Base transmitter locations must be at least the distance specified in paragraph (e)(2) of this section from the applicable protected TV station locations specified in paragraph (e)(1) of this section. This requirement is intended to provide a 40 dB minimum desired to undesired signal strength ratio at the Grade B contour of a co-channel TV station.

(1) The protected TV station locations are as follows:

Mobile Transmitter Frequency Range	Protected TV Station Location		
470-476 MHz	Washington, DC	38°57'17"	77°00'17"
476-482 MHz	Lancaster, PA	40°15'45"	76°27'49"

(2) The required minimum distance depends upon the effective radiated power (ERP) of the most powerful mobile transmitter(s) in the system:

Table E-12 - Maximum ERP (Watts) for Base Transmitters

Distance to Protected TV Station in kilometers (miles)	Antenna Height Above Average Terrain in meters (feet)								
	30 (100)	46 (150)	61 (200)	76 (250)	91 (300)	107 (350)	122 (400)	137 (450)	152 (500)
108 (67)	1000	1000	1000	1000	1000	1000	1000	1000	1000
106 (66)	1000	1000	1000	1000	1000	1000	1000	1000	750
105 (65)	1000	1000	1000	1000	1000	1000	825	650	600
103 (64)	1000	1000	1000	1000	1000	775	625	500	400
101 (63)	1000	1000	1000	1000	440	400	350	320	300
100 (62)	1000	1000	1000	525	375	250	200	150	125
98 (61)	1000	700	450	250	200	125	100	75	50
97 (60)	1000	425	225	125	100	75	50		

See § 22.659(c)(2). This table applies to base transmitters in the New York - Northeastern New Jersey urban areas. This table is for antenna heights of 152 meters (500 feet) or less above average terrain. For antenna heights between those in the table, use the next higher antenna height. For distances between those in the table, use the next lower distance.

Mobile unit ERP	Minimum distance	
60 watts	193 kilometers	(120 miles)
50	185	(115)
25	177	(110)
10	169	(105)
5	161	(100)

(f) Co-channel protection from base transmitters with high antennas. This paragraph applies only to base transmitter locations in the New York - Northeastern New Jersey urban area that utilize an antenna height of more than 152 meters (500 feet) above average terrain. The distance between the location of such a base transmitter and the applicable protected TV station location specified in this paragraph must equal or exceed the sum of the distance from the base transmitter location to the radio horizon in the direction of the specified location and 89 kilometers (55 miles - representing the distance from the main transmitter location of the TV station to its Grade B contour in the direction of the base transmitter). The distance to the radio horizon is calculated as follows:

$$d = \sqrt{17 \times h}$$

where d is the distance to the radio horizon in kilometers
h is the height of the antenna center of radiation above ground level in meters

Base Transmitter Frequency Range	Protected TV Station Location		
470-476 MHz	Washington, DC	38°57'17"	77°00'17"
476-482 MHz	Lancaster, PA	40°15'45"	76°27'49"

(g) The FCC may waive specific distance separation requirements of paragraphs (d) through (f) of this section if the applicant submits an engineering analysis which demonstrates that terrain effects and/or operation with less effective radiated power would satisfy the applicable minimum desired to undesired signal strength ratios at the Grade B contours of the protected TV stations. For this purpose, the Grade B contour of a TV station is deemed to be a circle with a 89 kilometer (55 mile) radius, centered on the protected TV station location, and along which the median TV signal field strength is 64 dBμV/m. In any showing intended to demonstrate compliance with the minimum desired to undesired signal ratio requirements of this section, all predicted field strengths must have been determined using the UHF TV propagation curves contained in Part 73 of this chapter.

§ 22.659 Effective radiated power limits.

The purpose of the rules in this section, which limit effective radiated power (ERP), is to reduce the likelihood that interference to television reception from public mobile operations on these channels will occur. The protected TV station locations specified in this section are the locations of record as of September 1974, and these do not change even though the TV stations may have been subsequently relocated.

(a) Maximum ERP. The ERP of base transmitters must not exceed 1000 Watts under any circumstances. The ERP of mobile transmitters must not exceed 60 Watts under any circumstances.

(b) Co-channel protection from base transmitters. The ERP of base transmitters in the New York - Northeastern New Jersey urban area must not exceed the limits in the tables referenced in paragraphs (b)(2) and (b)(3) of this section. The limits depend upon the height above average terrain of the base transmitter antenna and the distance between the base transmitter and the nearest protected TV station location in paragraph (b)(1) of this section.

(1) The protected TV station locations are as follows:

Base Transmitter Frequency Range	Protected TV Station Location		
470-476 MHz	Washington, DC	38°57'17"	77°00'17"
476-482 MHz	Lancaster, PA	40°15'45"	76°27'49"

(2) Tables E-8 and E-9 apply to base transmitters in the New York - Northeastern New Jersey urban area that transmit on channels in the 476-482 MHz range.

(3) Tables E-10 and E-11 apply to base transmitters in the New York - Northeastern New Jersey urban area that transmit on channels in the 470-476 MHz range.

(c) Adjacent channel protection from base transmitters. The ERP of base transmitters must not exceed the limits in Table E-12. The limits depend upon the height above average terrain of the base transmitter antenna and the distance between the base transmitter and the nearest protected TV station location specified in paragraph (c)(1) of this section.

(1) The protected TV station locations are as follows:

Base Transmitter Frequency Range	Protected TV Station Location			TV Channel
470-476 MHz	Hanover, NH	43°42'30"	72°09'16"	(15)
	Lancaster, PA	40°15'45"	76°27'49"	(15)
476-482 MHz	Scranton, PA	41°10'58"	75°52'21"	(16)
482-488 MHz	Hanover, NH	43°42'30"	72°09'16"	(15)

(2) Table E-12 applies to base transmitters in the New York - Northeastern New Jersey urban area.

Subpart F - Rural Radiotelephone Service

§ 22.701 Scope.

The rules in this subpart govern the licensing and operation of stations and systems in the Rural Radiotelephone Service. The licensing and operation of these stations and systems is also subject to rules elsewhere in this part that apply generally to the Public Mobile Services. In case of conflict, however,the rules in this subpart govern.

§ 22.702 Eligibility.

Existing and proposed communications common carriers are eligible to hold authorizations to operate conventional central office, interoffice and rural subscriber stations in the Rural Radiotelephone Service. Only local exchange carriers that have been state certified to provide basic exchange telephone service (or others having state approval to provide such service) in the pertinent area are eligible to hold authorizations for Basic Exchange Telephone Radio Systems (BETRS). Subscribers are also eligible to hold authorizations to

operate rural subscriber stations in the Rural Radiotelephone Service.

§ 22.703 Separate rural subscriber station authorization not required.

A separate authorization is not required for rural subscriber stations for which the effective radiated power does not exceed 60 Watts and for which FAA notification of construction or alteration of the antenna structure is not required (see criteria in § 17.7 of this chapter). Authority to operate such rural subscriber stations is conferred by the authorization of the central office or base station from which they receive service.

§ 22.705 Rural radiotelephone system configuration.

Stations in the Rural Radiotelephone Service are authorized to communicate as follows:

(a) Rural subscriber stations are authorized to communicate with and through the central office station(s) with which they are associated. However, where the establishment of a central office station in this service is not feasible, rural subscriber stations may be authorized to communicate with and through a base station in the Paging and Radiotelephone Service.

(b) Central office stations may communicate only with rural subscriber stations.

(c) Interoffice stations may communicate only with other interoffice stations.

§ 22.709 Rural radiotelephone application requirements.

In addition to information required by Subparts B and D of this part, applications for authorization to operate a station in the Rural Radiotelephone Service must contain the applicable supplementary information described in this section.

(a) Interoffice stations. Applications for authority to operate a new interoffice station or to add transmitters or points of communications to an existing interoffice station must contain an exhibit demonstrating that the requested facilities would be used only for interconnecting central office stations and explaining why the use of alternative existing radio or wire facilities is not feasible.

(b) Technical information required. For each transmitter in the Rural Radiotelephone Service, the following information is required by FCC Form 401 Schedule B:

(1) Location description; city; county; state; geographical coordinates correct to ±1 second, the datum used (NAD 27 or NAD 83), site elevation above mean sea level, proximity to adjacent market boundaries and international borders;

(2) Antenna manufacturer, model number and type, antenna height to tip above ground level, the height of the center of radiation of the antenna above the average terrain, the height of the antenna center of radiation above the average elevation of the terrain along each of the 8 cardinal radials, antenna gain in the maximum lobe, the beamwidth of the maximum lobe of the antenna, a polar plot of the horizontal gain pattern of the antenna, the electric field polarization of the wave emitted by the antenna when installed as proposed;

(3) The center frequency of each channel requested, the maximum effective radiated power, the effective radiated power in each of the cardinal radial directions, any non-standard emission types to be used, including bandwidth and modulation type, the transmitter classification (e.g. central office), and the locations and call signs, if any, of any fixed points of communication.

(c) No landline facilities. Each application for a central office station must contain an exhibit showing that it is impracticable to provide the required communication service by means of landline facilities.

(d) Interference exhibit. Applications for central office, interoffice and relay stations must include an exhibit identifying co-channel facilities and demonstrating, in accordance with § 22.715 of this part that the proposed station, if authorized, would not cause interference to the service of those co-channel facilities. This exhibit must:

(1) For UHF channels, identify each protected transmitter located within 108 kilometers (67 miles) of the proposed transmitter in directions in which the distance to the interfering contour is 76.4 kilometers (47.5 miles) or less, and within 178 kilometers (111 miles) of the proposed transmitter in directions in which the distance to the interfering contour exceeds 76.4 kilometers (47.5 miles); and identify each protected Basic Exchange Telephone Radio System central office transmitter in the Rural Radiotelephone Service within 231 kilometers (144 miles),.

(2) For VHF channels, identify each protected transmitter located within 135 kilometers (84 miles) of the proposed transmitter in directions in which the distance to the interfering contour is 93.3 kilometers (58 miles) or less, and within 178 kilometers (111 miles) of the proposed transmitter in directions in which the distance to the interfering contour exceeds 93.3 kilometers (58 miles).

(3) For each protected transmitter identified, show the results of distance calculations indicating that there would be no overlap of service and interfering contours, or alternatively, indicate that the licensee of or applicant for the protected transmitter and/or the applicant, as required, have agreed in writing to accept any interference resulting from operation of the proposed transmitter.

(e) Blocking probability. Applications for authority to operate basic exchange telephone radio systems (BETRS) that request more than two channel pairs must include an exhibit containing calculations showing that the number of channels requested is the minimum necessary to achieve the required grade of service (in terms of blocking probability). Applications for authority to operate new conventional rural radiotelephone systems that request more than two channel pairs must include a statement explaining why BETRS technology is not being proposed.

§ 22.711 Provision of information to applicants.

Licensees in the Rural Radio Service must, upon request by a bona-fide prospective applicant, provide to such applicant the information required by § 22.709 regarding the portion of the licensee's operations that potentially could affect, or be affected by, the prospective applicant's proposed station, if such information is not already on file with the FCC. This information must be provided to the bona-fide prospective applicant no later than 30 days after receipt of the information request.

§ 22.713 Construction period for rural radiotelephone stations.

The construction period for stations in the Rural Radiotelephone Service is 12 months.

§ 22.715 Technical channel assignment criteria for rural radiotelephone stations.

Channels are assigned in the Rural Radiotelephone Service using the procedures in § 22.567 of this part.

§ 22.717 Procedure for mutually exclusive applications in the Rural Radiotelephone Service.

Mutually exclusive applications in the Rural Radiotelephone Service, including those that are mutually exclusive with applications in the Paging and Radiotelephone Service, are processed in accordance with the rules in this section.

(a) Filing groups. Pending mutually exclusive applications are processed in filing groups. Mutually exclusive applications in a filing group are given concurrent consideration. The FCC may dismiss as defective (pursuant to § 22.128 of this part) any mutually exclusive application(s) whose filing date is outside of the date range for inclusion in the filing group. The types of filing groups used in day-to-day application processing are specified in paragraph (b)(3) of this section. A filing group is one of the following types:

(1) Renewal filing group. A renewal filing group comprises a timely-filed application for renewal of an authorization and all timely-filed mutually exclusive competing applications.

(2) Same-day filing group. A same-day filing group comprises all mutually exclusive applications whose filing date is the same day, which is normally the filing date of the first-filed application(s).

(3) Thirty-day notice and cut-off filing group. A thirty-day notice and cut-off filing group comprises mutually exclusive applications whose filing date is no later than 30 days after the date of the Public Notice listing the first-filed application(s) (according to the filing dates) as acceptable for filing.

(4) Window filing group. A window filing group comprises mutually exclusive applications whose filing date is within an announced filing window. An announced filing window is a period of time between and including two specific dates, which are the first and last dates on which applications (or amendments) for a particular purpose may be accepted for filing. In the case of a one-day filing window, the two dates are the same. The dates are made known to the public in advance.

(b) Procedures. Generally, the FCC may grant one application in a filing group of mutually exclusive applications and dismiss other application(s) in the filing group that are excluded by that grant, pursuant to § 22.128 of this part.

(1) Selection methods. In selecting the application to grant, the FCC may use comparative hearings.

(2) Dismissal of applications. The FCC may dismiss any application in a filing group that is defective or otherwise subject to dismissal under § 22.128 of this part, either before or after employing selection procedures.

(3) Type of filing group used. Except as otherwise provided in this part, the type of filing group used in processing of two or more mutually exclusive applications depends on the purpose(s) of the applications.

(i) If one of the mutually exclusive applications is a timely-filed application for renewal of an authorization, a renewal filing group is used.

(ii) If any mutually exclusive application filed on the earliest filing date is an application for modification and none of the mutually exclusive applications is a timely-filed application for renewal, a same-day filing group is used.

(iii) If all of the mutually exclusive applications filed on the earliest filing date are applications for initial authorization, a thirty-day notice and cut-off filing group is used.

(4) Disposition. If there is only one application in any type of filing group, the FCC may grant that application and dismiss without prejudice any applications excluded by that grant (i.e. not in the filing group). If there is more than one mutually exclusive application in a filing group, the FCC disposes of these applications as follows:

(i) Applications in a renewal filing group. All mutually exclusive applications in a renewal filing group are designated for comparative consideration in a hearing.

(ii) Applications in a thirty-day notice and cut-off filing group. For applications in a thirty-day notice and cut-off filing group, the FCC may attempt to resolve the mutual exclusivity by facilitating a settlement between the applicants. If a settlement is not reached within a reasonable time, the FCC may designate all applications in the filing group for comparative consideration in a hearing. In this event, the result of the hearing disposes all of the applications in the filing group.

(iii) Applications in a same-day filing group. If there are two or more mutually exclusive applications in a same-day filing group, the FCC may attempt to resolve the mutual exclusivity by facilitating a settlement between the applicants. If a settlement is not reached within a reasonable time, the FCC may designate all applications in the filing group for comparative consideration in a hearing. In this event, the result of the hearing disposes all of the applications in the filing group.

(iv) Applications in a window filing group. Applications in a window filing group are processed in accordance with the procedures for a thirty-day notice and cut-off filing group in paragraph (b)(4)(ii) of this section.

(c) Terminology. For the purposes of this section, terms have the following meanings:

(1) The "filing date" of an application is the date on which that application was received in a condition acceptable for filing or the date on which the most recently filed major amendment to that application was received, whichever is later, excluding major amendments in the following circumstances:

(i) the major amendment reflects only a change in ownership or control found by the FCC to be in the public interest; or,

(ii) the major amendment as received is defective or otherwise found unacceptable for filing.

(2) An "application for initial authorization" is:

(i) any application requesting an authorization for a new system or station;

(ii) any application requesting authorization for an existing station to operate on an additional channel, unless the additional channel is for paired two-way radiotelephone operation, is in the same frequency range as the existing channel(s), and will be operationally integrated with the existing channel(s) such as by trunking; or,

(iii) any application requesting authorization for a new transmitter at a location more than 2 kilometers (1.2 miles) from any existing transmitters of the applicant licensee on the requested channel.

(3) An "application for modification" is any application other than an application for initial authorization or renewal.

§ 22.719 Additional channel policy for rural radiotelephone stations.

The rules in this section govern the processing of applications for central office stations that request a rural radiotelephone channel pair when the applicant has applied for or been granted an authorization for other rural radiotelephone channel pairs in the same area. The general policy of the FCC is to promote effective use of the spectrum by encouraging the use of spectrum-efficient technologies (i.e. BETRS) and by assigning the minimum number of channels necessary to provide service.

(a) Transmitters in same area. Any central office station transmitter on any channel pair listed in § 22.725 is considered to be in the same area as another central office station transmitter on any other channel pair listed in § 22.725 if the transmitting antennas are located within 10 kilometers (6.2 miles) of each other.

(b) Initial channel pairs. The FCC does not assign more than two channel pairs for new central office stations, unless there are more than eight rural subscriber stations to be served. Stations are considered to be new if there are no authorized transmitters on any channel listed in § 22.725 controlled by the applicant in the same geographic area.

(c) Additional channel pairs. Applications for central office station transmitters to be located in the same area as an authorized central office station controlled by the applicant, but to operate on a different channel pair(s), are considered as requests for additional channel pair(s) for the authorized central office station. The FCC may grant applications for additional channel pairs provided that the need for each additional channel pair (after the first two) is established and fully justified in terms of achieving the required grade of service (blocking probability), and the applicant demonstrates that there will still be adequate spectrum available in the area to meet realistic estimates of current and future demand for paging, two-way mobile and rural radiotelephone services. In the case of conventional rural radiotelephone central office stations, an explanation must be provided as to why BETRS technology is not being used instead of additional channel pairs.

CONVENTIONAL RURAL RADIOTELEPHONE STATIONS

§ 22.725 Channels for conventional rural radiotelephone stations.

The following channels are allocated for paired assignment to transmitters that provide conventional rural radiotelephone service. These channels may be assigned for use by central office or rural subscriber stations as indicated, and interoffice stations. These channels may be assigned also for use by relay stations in systems where it would be impractical to provide rural radiotelephone service without the use of relay stations. All channels have a bandwidth of 20 kHz and are designated by their center frequencies in Mega-Hertz.

VHF channels

central office	rural subscriber	central office	rural subscriber
152.03	158.49	152.57	157.83
152.06	158.52	152.60	157.86
152.09	158.55	152.63	157.89
152.12	158.58	152.66	157.92
152.15	158.61	152.69	157.95
152.18	158.64	152.72	157.98
152.21	158.67	152.75	158.01
152.51	157.77	152.78	158.04
152.54	157.80	152.81	158.07

UHF channels

454.025	459.025	454.350	459.350
454.050	459.050	454.375	459.375
454.075	459.075	454.400	459.400
454.100	459.100	454.425	459.425
454.125	459.125	454.450	459.450
454.150	459.150	454.475	459.475
454.175	459.175	454.500	459.500
454.200	459.200	454.525	459.525
454.225	459.225	454.550	459.550
454.250	459.250	454.575	459.575
454.275	459.275	454.600	459.600
454.300	459.300	454.625	459.625
454.325	459.325	454.650	459.650

(a) The channels listed in this section are also allocated for assignment in the Paging and Radiotelephone Service.

(b) In Puerto Rico and the Virgin Islands, channels in the 154.04-154.46 MHz and 161.40-161.85 MHz frequency ranges may be assigned to transmitters providing rural radiotelephone service; channels in these ranges are also allocated for assignment in the International Fixed Public and Aeronautical Fixed radio services.

(c) In Alaska, channels 42.40, 44.10, 44.20 and 45.90 MHz are allocated for assignment to transmitters providing rural radiotelephone service using meteor burst propagation modes, subject to the provisions of § 22.729.

§ 22.727 Power limits for conventional rural radiotelephone transmitters.

The transmitting power of transmitters operating on the channels listed in § 22.725 must not exceed the limits in this section.

(a) Maximum ERP. The effective radiated power (ERP) of central office and rural subscriber station transmitters must not exceed the applicable limits in this paragraph under any circumstances.

Frequency Range (MHz)	Maximum ERP (Watts)
152-153	1400
157-159	150
454-455	3500
459-460	150

(b) Basic power limit. Except as provided in paragraph (d) of this section, the ERP of central office station transmitters must not exceed 500 Watts.

(c) Height-power limits. Except as provided in paragraph (d) of this section, the ERP of central office station transmitters must not exceed the amount that would result in an average distance to the "service contour" of 41.6 kilometers (26 miles) for VHF channels or 30.7 kilometers (19 miles) for UHF channels. The average distance to the "service contour" is calculated by taking the arithmetic mean of the distances determined using the procedures specified in § 22.567 for the eight cardinal radial directions, excluding cardinal radial directions for which 90% or more of the distance so calculated is over water.

(d) Encompassed interfering contour areas. Central office station transmitters are exempt from the basic power and height-power limits of this section if the area within their interfering contours is totally encompassed by the interfering contours of operating co-channel central office station transmitters controlled by the same licensee. For the purpose of this paragraph, operating transmitters are authorized transmitters that are providing service to subscribers.

(e) Adjacent channel protection. The ERP of central office station transmitters must not exceed 500 Watts if they transmit on channel 454.025 MHz and are located less than 7 kilometers (4.3 miles) from any Private Radio Services station receiving on adjacent channel 454.000 MHz.

(f) Meteor burst stations. The transmitter output power for stations using meteor burst propagation modes must not exceed 2000 Watts for central office stations and 500 Watts for rural subscriber stations.

§ 22.729 Meteor burst propagation modes.

The rules in this section govern stations in this service that use meteor burst propagation modes to provide rural radiotelephone service in Alaska.

(a) Channel assignments. The channels 42.40 and 44.10 MHz may be assigned to central office stations and rural subscriber stations, respectively, on a primary basis. The channels 44.20 and 45.90 MHz may be assigned to central office and rural subscriber stations, respectively, on a secondary basis to Private Radio services stations using meteor burst propagation modes.

(b) Transmitting power. The transmitter output power must not exceed 2000 Watts for central office stations and 500 Watts for rural subscriber stations.

(c) Station locations. Co-channel central office stations of different licensees must be at least 241 kilometers (150 miles) apart. A rural subscriber station and a central office station of different licensees must be at least 241 kilometers (150 miles) apart if the rural subscriber stations of the different licensees operate on the same channel. The FCC may waive the requirements of this paragraph if the affected users agree to a cooperative sharing arrangement.

(d) Emission type. Only type F1D emission is authorized.

(e) Bandwidth. The authorized bandwidth is 20 kHz.

(f) Station identification. Station identification is required only for the central office station.

(g) Interference. Stations authorized under the provisions of this section must not cause harmful interference to the service of stations in other radio services.

(h) Developmental authorization. Meteor burst communications systems may be authorized under developmental authorizations pursuant to § 22.419.

§ 22.731 Emission limitations.

Upon application for multichannel operation, the FCC may authorize emission bandwidths wider than those specified in § 22.357, provided that spectrum utilization is equal to or better than that achieved by single channel operation.

§ 22.733 Priority of service.

Within the Rural Radiotelephone Service, the channels listed in § 22.725 are intended primarily for use in rendition of public message service between rural subscriber and central office stations and to provide radio trunking facilities between central offices. The channels may also be used, however, for the rendition of private leased-line communication service provided that such usage would not reduce or impair the extent or quality of communication service that would be available, in the absence of private leased-line service, to the general public receiving or subsequently requesting public message service from a central office.

§ 22.737 Temporary fixed stations.

The FCC may, upon proper application therefor, authorize the construction and operation of temporary fixed stations. Temporary fixed stations are to be used as rural subscriber, interoffice, or central office stations when those stations are unavailable or when service from those stations is disrupted by storms or emergencies.

(a) Six month limitation. If it is necessary for a temporary fixed station to remain at the same location for more than six months, the licensee of that station must apply for authorization to operate the station at the specific location at least 30 days before the end of the six month period.

(b) International communications. Communications between the United States and Canada or Mexico must not be carried using a temporary fixed station without prior authorization from the FCC. Licensees desiring to carry such communications should apply sufficiently in advance to allow for the time necessary to coordinate with Canada or Mexico.

BASIC EXCHANGE TELEPHONE RADIO SYSTEMS

§ 22.757 Channels for basic exchange telephone radio systems.

The channels listed in § 22.725 are also allocated for paired assignment to transmitters in basic exchange telephone radio systems. In addition, the following channels are allocated for paired assignment to transmitters in basic exchange telephone radio systems. All channels have a bandwidth of 20 kHz and are designated by their center frequencies in MegaHertz.

UHF channels - shared with Private Radio Services

rural subscriber	central office	rural subscriber	central office
816.2375	861.2375	816.1125	861.1125
817.2375	862.2375	817.1125	862.1125
818.2375	863.2375	818.1125	863.1125
819.2375	864.2375	819.1125	864.1125
820.2375	865.2375	820.1125	865.1125
816.2125	861.2125	816.0875	861.0875
817.2125	862.2125	817.0875	862.0875
818.2125	863.2125	818.0875	863.0875
819.2125	864.2125	819.0875	864.0875
820.2125	865.2125	820.0875	865.0875
816.1875	861.1875	816.0625	861.0625
817.1875	862.1875	817.0625	862.0625
818.1875	863.1875	818.0625	863.0625
819.1875	864.1875	819.0625	864.0625
820.1875	865.1875	820.0625	865.0625
816.1625	861.1625	816.0375	861.0375
817.1625	862.1625	817.0375	862.0375
818.1625	863.1625	818.0375	863.0375
819.1625	864.1625	819.0375	864.0375
820.1625	865.1625	820.0375	865.0375
816.1375	861.1375	816.0125	861.0125
817.1375	862.1375	817.0125	862.0125
818.1375	863.1375	818.0125	863.0125
819.1375	864.1375	819.0125	864.0125
820.1375	865.1375	820.0125	865.0125

(a) Channels are assigned in groups, as listed in this section.

(b) Channel groups in the 816-865 Mhz frequency range are not assigned to Rural Radio Service stations located:

(1) Within 161 kilometers (100 miles) of the borders of the largest 54 MSAs (see § 22.909).

(2) North of Line A or East of Line C; or,

(3) Within 110 kilometers (68 miles) of the Mexican border.

(c) Channel groups in the 816-865 Mhz frequency range are not assigned to central office stations located within 113 kilometers (70 miles) of another station authorized to operate on the same channels or on channels with center frequencies offset by 12.5 kHz.

(d) Technical parameters governing the use of these channels are contained in Subpart S of Part 90 of this chapter.

(e) The Common Carrier Bureau coordinates the availability of channels in the 816-865 MHz frequency range with the Private Radio Bureau.

§ 22.759 Power limit for BETRS.

The effective radiated power of central office and rural subscriber station transmitters used in basic exchange telephone radio systems must not exceed the limits in this section.

(a) Maximum ERP. The effective radiated power (ERP) of central office and rural subscriber station transmitters in BETRS must not exceed the applicable limits in this paragraph under any circumstances.

Frequency Range (MHz)	Maximum ERP (Watts)
152-153	1400
157-159	150
454-455	3500
459-460	150

(b) Height-power limit. The ERP of central office stations in BETRS must not exceed the amount calculated as follows:

$$ERP_W = 557{,}418 \cdot h_m^2$$

where ERP_w is the effective radiated power in Watts
h_m is the average (eight cardinal radial) antenna height above average terrain in meters

Subpart G - Air-ground Radiotelephone Service

§ 22.801 Scope.

The rules in this subpart govern the licensing and operation of public air-ground radiotelephone stations and systems. The licensing and operation of these stations and systems is also subject to rules elsewhere in this part that apply generally to the Public Mobile services. In case of conflict, however, the rules in this subpart govern.

§ 22.803 Air-ground application requirements.

In addition to information required by Subparts B and D of this part, applications for authorization to operate an air-ground station or system in the Air-ground Radiotelephone Service must contain the applicable supplementary information described in this section.

(a) Administrative information. The following information is required by FCC Form 401, Schedule B or C (as applicable).

(1) The number of transmitter sites for which authorization is requested.

(2) The call sign(s) of other facilities in the same area that are ultimately controlled by the real party in interest to the application.

(b) Technical information. The following information is required by FCC Form 401, Schedule B.

(1) Location description; city; county; state; geographical coordinates correct to ±1 second, the datum used (NAD 27 or NAD 83), site elevation above mean sea level, proximity to adjacent market boundaries and international borders;

(2) Antenna manufacturer, model number and type, antenna height to tip above ground level, antenna gain in the maximum lobe, the electric field polarization of the wave emitted by the antenna when installed as proposed;

(3) The center frequency of each channel requested, the maximum effective radiated power, any non-standard emission types to be used, including bandwidth and modulation type and the transmitter classification (e.g. ground or signaling).

GENERAL AVIATION AIR-GROUND STATIONS

§ 22.805 Channels for general aviation air-ground service.

The following channels are allocated for the provision of radiotelephone service to airborne mobile subscribers in general aviation aircraft. These channels have a bandwidth of 20 kHz and are designated by their center frequencies in MegaHertz.

Signalling channel pair

ground	airborne mobile
454.675	459.675

Communication channel pairs

ground	airborne mobile	ground	airborne mobile
454.700	459.700	454.850	459.850
454.725	459.725	454.875	459.875
454.750	459.750	454.900	459.900
454.775	459.775	454.925	459.925
454.800	459.800	454.950	459.950
454.825	459.825	454.975	459.975

(a) Channel 454.675 MHz is assigned to each and every ground station, to be used only for automatically alerting airborne mobile stations of incoming calls.

(b) All airborne mobile channels are assigned for use by each and every airborne mobile station.

§ 22.809 Transmitting power limits.

The transmitting power of ground and airborne mobile transmitters operating on the channels listed in § 22.805 must not exceed the limits in this section.

(a) Ground station transmitters. The effective radiated power of ground stations must not exceed 100 Watts and must not be less than 50 Watts, except as provided in § 22.811.

(b) Airborne mobile transmitters. The transmitter power output of airborne mobile transmitters must not exceed 25 Watts and must not be less than 4 Watts.

§ 22.811 Idle tone.

Whenever a ground station transmitter authorized to transmit on any of the communications channels listed in § 22.805 is available for service but is not providing service, a modulated signal must be continuously transmitted on the communication channel assigned to that transmitter. While this modulated signal is transmitted, the transmitter power must be between 10 and 20 dB lower than the normal transmitting power.

§ 22.813 Technical channel pair assignment criteria.

The rules in this section establish technical assignment criteria for the channel pairs listed in § 22.805. These criteria are intended to provide substantial service volumes over areas that have significant local and regional general aviation activity, while maintaining the continuous nationwide in-route coverage of the original geographical layout.

(a) Distance separation for co-channel ground stations. The FCC may grant an application requesting assignment of a communication channel pair to a proposed ground transmitter only if the proposed antenna location is at least 800 kilometers (497 miles) from the antenna location of the nearest co-channel ground transmitter in the United States, its territories and possessions; and 1000 kilometers (621 miles) from the antenna location of the nearest co-channel ground transmitter in Canada.

(b) Dispersion. The FCC may grant an application requesting assignment of a communication channel pair to a proposed ground transmitter only if there are no more than five different communication channel pairs already assigned to ground transmitters with antenna locations within a 320 kilometer (199 mile) radius of the proposed antenna location.

§ 22.815 Construction period for general aviation ground stations.

The construction period (see § 22.142) for general aviation ground stations is 12 months.

§ 22.817 Additional channel policies.

The rules in this section govern the processing of applications for authority to operate a ground station transmitter on any ground station communication channel listed in § 22.805 when the applicant has applied or been granted an authorization for other ground station communication channels in the same area. The general policy of the FCC is to assign one ground station communication channel in an area to a carrier per application cycle, up to a maximum of six ground station communication channels per area. That is, a carrier must apply for one ground station communication channel, receive the authorization, construct the station, and notify the FCC of commencement of service before applying for an additional ground station communication channel in that area.

(a) Air-ground transmitters in same area. Any transmitter on any of the ground station channels listed in § 22.805 is considered to be in the same area as another transmitter on any ground station channel listed in § 22.805 if it is located less than 350 kilometers (217 miles) from that transmitter.

(b) Initial channel. The FCC will not assign more than one ground station communication channel for new ground stations. Ground stations are considered to be new if there are no authorized ground station transmitters on any channel listed in § 22.805 controlled by the applicant in the same area.

(c) Additional channel. Applications for ground transmitters to be located in the same area as an authorized ground station controlled by the applicant, but to operate on a different ground station communication channel, are considered as requesting an additional channel for the authorized station.

(d) Amendment of pending application. If the FCC receives and accepts for filing an application for a ground station transmitter to be located in the same area as a ground station transmitter proposed in a pending application previously filed by the applicant, but on a different ground station communication channel, the subsequent application is treated as a major amendment to change the technical proposal of the prior application. The filing date of any application so amended is the date the FCC received the subsequent application.

(e) Dismissal of premature applications for additional channel. If the FCC receives an application requesting an additional ground station communication channel for an authorized ground station prior to receiving notification that the station is providing service to subscribers on the authorized channel(s), the FCC may dismiss that application without prejudice.

(f) Dismissal of applications for seventh channel. If the FCC receives an application requesting an additional ground station communication channel for an authorized ground station which would, if granted, result in that station being assigned more than six ground station communication channels in the same area, the FCC may dismiss that application without prejudice.

§ 22.819 AGRAS compatibility requirement.

Except as provided in paragraph (a) of this section, stations transmitting on the channels listed in § 22.805 must operate in compliance with the technical and operational requirements contained in the document, "Technical Reference, Air-ground Radiotelephone Automated Service (AGRAS), System Operation and Equipment Characteristics", dated April 12, 1985.

(a) Until January 1, 1996, stations may continue to operate in compliance with the previous standard adopted in Docket 16073.

(b) Copies of the document referenced in this section may be obtained from the FCC's copying contractor.

§ 22.821 Authorization for airborne mobile stations.

An authorization separate from any ground station authorization is required for each airborne mobile station that operates on the channels listed in § 22.805. The operator of the airborne mobile station must apply for the authorization (FCC Form 409). The application must contain an affirmative representation that the applicant has made definite arrangements with a wireline common carrier for service and billing.

COMMERCIAL AVIATION AIR-GROUND SYSTEMS

§ 22.857 Channel plan for commercial aviation air-ground systems.

The 849-851 and 894-896 MHz frequency ranges are allocated for block assignment to nationwide air-ground systems providing radiotelephone service to passengers aboard commercial aircraft. These frequency ranges may also be used to provide service to persons in general aviation or other aircraft. Ground stations transmit on channels in the 849-851 MHz range. Airborne mobile stations transmit on channels in the 894-896 MHz range. Systems using these channels must conform to the channel plan described in this section.

(a) Channel blocks. The spectrum allocated for commercial aviation air-ground systems is divided into ten channel blocks, numbered 1 through 10. All ground stations in each geographical area must use the same channel block for communication with airborne mobile stations in flight, in accordance with § 22.859.

(1) Each channel block is subdivided into 6 control channels labeled P-1 through P-6, and 29 communications channels labeled C-1 through C-29.

(2) The authorized channel bandwidths are as follows:

(i) Each control channel has a bandwidth of 3.2 kHz.

(ii) Each communications channel has a bandwidth of 6 kHz.

(b) The center frequencies (in MegaHertz) of the communications and control channels are listed in Tables G-1 and G-2.

§ 22.859 Geographical channel block layout.

Except as provided in paragraphs (a) and (b) of this section, ground station locations must be within 1.61 kilometers (one mile) of the locations listed in this paragraph. The channel block allotted for each location must be used to provide service to airborne mobile stations in flight and may be used to provide service to airborne mobile stations on ground.

Location	N. Latitude	W. Longitude	Channel Block
ALASKA			
Anchorage	61°11'06"	149°54'42"	8
Cordova	60°33'00"	145°43'00"	5
Ketchikan	55°21'20"	131°42'33"	5
Juneau	58°21'18"	134°34'30"	4
Sitka	57°03'30"	135°22'01"	7
Yakutat	59°30'30"	142°30'00"	8
ALABAMA			
Birmingham	33°23'24"	86°39'59"	2
ARIZONA			
Phoenix	33°35'39"	112°05'12"	4
Winslow	35°01'17"	110°43'02"	6
ARKANSAS			
Pine Bluff	34°10'56"	91°56'18"	8
CALIFORNIA			
Blythe	33°36'39"	114°42'24"	10
Eureka	40°42'59"	124°12'09"	8
Los Angeles	33°56'45"	118°23'03"	4
Oakland	37°51'12"	122°12'30"	1
San Francisco	37°41'15"	122°26'01"	6
Visalia	36°19'36"	119°23'22"	7
COLORADO			
Colorado Springs	38°44'39"	104°51'46"	8

Table G-1 - Ground Station Channels

	CHANNEL BLOCK									
	10	9	8	7	6	5	4	3	2	1
C-1	849.0055	849.2055	849.4055	849.6055	849.8055	850.0055	850.2055	850.4055	850.6055	850.8055
C-2	849.0115	849.2115	849.4115	849.6115	849.8115	850.0115	850.2115	850.4115	850.6115	850.8115
C-3	849.0175	849.2175	849.4175	849.6175	849.8175	850.0175	850.2175	850.4175	850.6175	850.8175
C-4	849.0235	849.2235	849.4235	849.6235	849.8235	850.0235	850.2235	850.4235	850.6235	850.8235
C-5	849.0295	849.2295	849.4295	849.6295	849.8295	850.0295	850.2295	850.4295	850.6295	850.8295
C-6	849.0355	849.2355	849.4355	849.6355	849.8355	850.0355	850.2355	850.4355	850.6355	850.8355
C-7	849.0415	849.2415	849.4415	849.6415	849.8415	850.0415	850.2415	850.4415	850.6415	850.8415
C-8	849.0475	849.2475	849.4475	849.6475	849.8475	850.0475	850.2475	850.4475	850.6475	850.8475
C-9	849.0535	849.2535	849.4535	849.6535	849.8535	850.0535	850.2535	850.4535	850.6535	850.8535
C-10	849.0595	849.2595	849.4595	849.6595	849.8595	850.0595	850.2595	850.4595	850.6595	850.8595
C-11	849.0655	849.2655	849.4655	849.6655	849.8655	850.0655	850.2655	850.4655	850.6655	850.8655
C-12	849.0715	849.2715	849.4715	849.6715	849.8715	850.0715	850.2715	850.4715	850.6715	850.8715
C-13	849.0775	849.2775	849.4775	849.6775	849.8775	850.0775	850.2775	850.4775	850.6775	850.8775
C-14	849.0835	849.2835	849.4835	849.6835	849.8835	850.0835	850.2835	850.4835	850.6835	850.8835
C-15	849.0895	849.2895	849.4895	849.6895	849.8895	850.0895	850.2895	850.4895	850.6895	850.8895
C-16	849.0955	849.2955	849.4955	849.6955	849.8955	859.0955	850.2955	850.4955	850.6955	850.8955
C-17	849.1015	849.3015	849.5015	849.7015	849.9015	850.1015	850.3015	850.5015	850.7015	850.9015
C-18	849.1075	849.3075	849.5075	849.7075	849.9075	850.1075	850.3075	850.5075	850.7075	850.9075
C-19	849.1135	849.3135	849.5135	849.7135	849.9135	850.1135	850.3135	850.5135	850.7135	850.9135
C-20	849.1195	849.3195	849.5195	849.7195	849.9195	850.1195	850.3195	850.5195	850.7195	850.9195
C-21	849.1255	849.3255	849.5255	849.7255	849.9255	850.1255	850.3255	850.5255	850.7255	850.9255
C-22	849.1315	849.3315	849.5315	849.7315	849.9315	850.1315	850.3315	850.5315	850.7315	850.9315
C-23	849.1375	849.3375	849.5375	849.7375	849.9375	850.1375	850.3375	850.5375	850.7375	850.9375
C-24	849.1435	849.3435	849.5435	849.7435	849.9435	850.1435	850.3435	850.5435	850.7435	850.9435
C-25	849.1495	849.3495	849.5495	849.7495	849.9495	850.1495	850.3495	850.5495	850.7495	850.9495
C-26	849.1555	849.3555	849.5555	849.7555	849.9555	850.1555	850.3555	850.5555	850.7555	850.9555
C-27	849.1615	849.3615	849.5615	849.7615	849.9615	850.1615	850.3615	850.5615	850.7615	850.9615
C-28	849.1675	849.3675	849.5675	849.7675	849.9675	850.1675	850.3675	850.5675	850.7675	850.9675
C-29	849.1735	849.3735	849.5735	849.7735	849.9735	850.1735	850.3735	850.5735	850.7735	850.9735
P-6	849.1813	849.3813	849.5813	849.7813	849.9813	850.1813	850.3813	850.5813	850.7813	850.9813
P-5	849.1845	849.3845	849.5845	849.7845	849.9845	850.1845	850.3845	850.5845	850.7845	850.9845
P-4	849.1877	849.3877	849.5877	849.7877	849.9877	850.1877	850.3877	850.5877	850.7877	850.9877
P-3	849.1909	849.3909	849.5909	849.7909	849.9909	850.1909	850.3909	850.5909	850.7909	850.9909
P-2	849.1941	849.3941	849.5941	849.7941	849.9941	850.1941	850.3941	850.5941	850.7941	850.9941
P-1	849.1973	849.3973	849.5973	849.7973	849.9973	850.1973	850.3973	850.5973	850.7973	850.9973

Table G-2 - Airborne Mobile Station Channels

	CHANNEL BLOCK									
	10	9	8	7	6	5	4	3	2	1
C-1	894.0055	894.2055	894.4055	894.6055	894.8055	895.0055	895.2055	895.4055	895.6055	895.8055
C-2	894.0115	894.2115	894.4115	894.6115	894.8115	895.0115	895.2115	895.4115	895.6115	895.8115
C-3	894.0175	894.2175	894.4175	894.6175	894.8175	895.0175	895.2175	895.4175	895.6175	895.8175
C-4	894.0235	894.2235	894.4235	894.6235	894.8235	895.0235	895.2235	895.4235	895.6235	895.8235
C-5	894.0295	894.2295	894.4295	894.6295	894.8295	895.0295	895.2295	895.4295	895.6295	895.8295
C-6	894.0355	894.2355	894.4355	894.6355	894.8355	895.0355	895.2355	895.4355	895.6355	895.8355
C-7	894.0415	894.2415	894.4415	894.6415	894.8415	895.0415	895.2415	895.4415	895.6415	895.8415
C-8	894.0475	894.2475	894.4475	894.6475	894.8475	895.0475	895.2475	895.4475	895.6475	895.8475
C-9	894.0535	894.2535	894.4535	894.6535	894.8535	895.0535	895.2535	895.4535	895.6535	895.8535
C-10	894.0595	894.2595	894.4595	894.6595	894.8595	895.0595	895.2595	895.4595	895.6595	895.8595
C-11	894.0655	894.2655	894.4655	894.6655	894.8655	895.0655	895.2655	895.4655	895.6655	895.8655
C-12	894.0715	894.2715	894.4715	894.6715	894.8715	895.0715	895.2715	895.4715	895.6715	895.8715
C-13	894.0775	894.2775	894.4775	894.6775	894.8775	895.0775	895.2775	895.4775	895.6775	895.8775
C-14	894.0835	894.2835	894.4835	894.6835	894.8835	895.0835	895.2835	895.4835	895.6835	895.8835
C-15	894.0895	894.2895	894.4895	894.6895	894.8895	895.0895	895.2895	895.4895	895.6895	895.8895
C-16	894.0955	894.2955	894.4955	894.6955	894.8955	895.0955	895.2955	895.4955	895.6955	895.8955
C-17	894.1015	894.3015	894.5015	894.7015	894.9015	895.1015	895.3015	895.5015	895.7015	895.9015
C-18	894.1075	894.3075	894.5075	894.7075	894.9075	895.1075	895.3075	895.5075	895.7075	895.9075
C-19	894.1135	894.3135	894.5135	894.7135	894.9135	895.1135	895.3135	895.5135	895.7135	895.9135
C-20	894.1195	894.3195	894.5195	894.7195	894.9195	895.1195	895.3195	895.5195	895.7195	895.9195
C-21	894.1255	894.3255	894.5255	894.7255	894.9255	895.1255	895.3255	895.5255	895.7255	895.9255
C-22	894.1315	894.3315	894.5315	894.7315	894.9315	895.1315	895.3315	895.5315	895.7315	895.9315
C-23	894.1375	894.3375	894.5375	894.7375	894.9375	895.1375	895.3375	895.5375	895.7375	895.9375
C-24	894.1435	894.3435	894.5435	894.7435	894.9435	895.1435	895.3435	895.5435	895.7435	895.9435
C-25	894.1495	894.3495	894.5495	894.7495	894.9495	895.1495	895.3495	895.5495	895.7495	895.9495
C-26	894.1555	894.3555	894.5555	894.7555	894.9555	895.1555	895.3555	895.5555	895.7555	895.9555
C-27	894.1615	894.3615	894.5615	894.7615	894.9615	895.1615	895.3615	895.5615	895.7615	895.9615
C-28	894.1675	894.3675	894.5675	894.7675	894.9675	895.1675	895.3675	895.5675	895.7675	895.9675
C-29	894.1735	894.3735	894.5735	894.7735	894.9735	895.1735	895.3735	895.5735	895.7735	895.9735
P-6	894.1813	894.3813	894.5813	894.7813	894.9813	895.1813	895.3813	895.5813	895.7813	895.9813
P-5	894.1845	894.3845	894.5845	894.7845	894.9845	895.1845	895.3845	895.5845	895.7845	895.9845
P-4	894.1877	894.3877	894.5877	894.7877	894.9877	895.1877	895.3877	895.5877	895.7877	895.9877
P-3	894.1909	894.3909	894.5909	894.7909	894.9909	895.1909	895.3909	895.5909	895.7909	895.9909
P-2	894.1941	894.3941	894.5941	894.7941	894.9941	895.1941	895.3941	895.5941	895.7941	895.9941
P-1	894.1973	894.3973	894.5973	894.7973	894.9973	895.1973	895.3973	895.5973	895.7973	895.9973

Denver	39°46'45"	104°50'49"	1
Hayden	40°29'04"	107°13'08"	6
FLORIDA			
Miami	25°48'27"	80°16'30"	4
Orlando	28°26'53"	81°22'00"	2
Tallahassee	30°24'02"	84°21'18"	7
GEORGIA			
Atlanta	33°39'05"	84°25'54"	5
St. Simons Island	31°09'22"	81°23'14"	6
HAWAII			
Mauna Kapu	21°24'24"	158°06'02"	5
IDAHO			
Blackfoot	43°11'34"	112°20'57"	8
Caldwell	43°38'45"	116°38'44"	10
ILLINOIS			
Chicago	41°46'49"	87°45'20"	3
Kewanee	41°12'05"	89°57'33"	5
Schiller Park	41°57'18"	87°52'57"	2
INDIANA			
Fort Wayne	40°59'16"	85°11'31"	7
IOWA			
Des Moines	41°31'58"	93°38'54"	1
KANSAS			
Garden City	37°59'35"	100°54'04"	3
Wichita	37°37'24"	97°27'15"	7
KENTUCKY			
Fairdale	38°04'48"	85°47'33"	6
LOUISIANA			
Kenner	30°00'44"	90°13'30"	3
Shreveport	32°27'09"	93°49'38"	5
MASSACHUSETTS			
Boston	42°23'15"	71°01'03"	7
MICHIGAN			
Bellville	42°12'17"	83°29'09"	8
Flint	42°58'21"	83°44'22"	9
Sault Saint Marie	46°28'45"	84°21'31"	6
MINNESOTA			
Bloomington	44°51'30"	93°13'19"	9
MISSISSIPPI			
Meridian	32°19'10"	88°41'33"	9
MISSOURI			
Kansas City	39°18'37"	94°41'07"	6
St. Louis	38°42'45"	90°19'19"	4
Springfield	37°14'28"	93°22'54"	9
MONTANA			
Lewistown	47°02'56"	109°27'27"	5
Miles City	46°25'30"	105°52'30"	8
Missoula	47°01'05"	114°00'41"	3
NEBRASKA			
Grand Island	40°58'00"	98°19'11"	2
Ogallala	41°07'11"	101°45'37"	4
NEVADA			
Las Vegas	36°05'35"	115°10'25"	1
Reno	39°35'13"	119°55'52"	3
Tonopah	38°03'43"	117°13'24"	9
Winnemucca	41°00'39"	117°45'58"	4
NEW MEXICO			
Alamogordo	32°54'46"	105°56'41"	8
Albuquerque	35°03'05"	106°37'13"	10
Aztec	36°48'42"	107°53'48"	9
Clayton	36°27'29"	103°11'16"	5
NEW JERSEY			
Woodbury	39°50'01"	75°09'21"	3
NEW YORK			
E. Elmhurst	40°46'21"	73°52'42"	1
Schuyler	43°09'09"	75°07'50"	2
Staten Island	40°36'05"	74°06'35"	9
NORTH CAROLINA			
Greensboro	36°05'54"	79°56'42"	9
Wilmington	34°16'10"	77°54'24"	3
NORTH DAKOTA			
Dickinson	46°51'05"	102°47'35"	7
OHIO			
Pataskala	40°04'38"	82°41'57"	1
OKLAHOMA			
Warner	35°29'31"	95°18'25"	4
Woodward	36°24'42"	99°28'50"	9
OREGON			
Albany	44°38'24"	123°03'36"	5
Klamath Falls	42°06'30"	121°38'00"	2
Pendleton	45°35'45"	118°31'02"	7
PENNSYLVANIA			
Coraopolis	40°30'33"	80°13'27"	4
New Cumberland	40°11'30"	76°52'02"	8
SOUTH CAROLINA			
Charleston	32°54'10"	80°01'20"	4
SOUTH DAKOTA			
Aberdeen	45°27'21"	98°25'26"	6
Rapid City	44°02'36"	103°03'36"	5
TENNESSEE			
Elizabethton	36°26'04"	82°08'06"	7
Memphis	35°01'44"	89°56'15"	10
Nashville	36°08'44"	86°41'31"	3
TEXAS			
Austin	30°16'37"	97°49'34"	2
Bedford	32°50'19"	97°08'03"	1
Houston	29°54'37"	95°24'39"	9
Lubbock	33°37'06"	101°52'14"	7
Monahans	31°34'58"	102°54'18"	6

UTAH			
Abajo Peak	37°50'21"	109°27'42"	7
Delta	39°23'15"	112°30'44"	2
Escalante	37°45'19"	111°52'27"	5
Green River	38°57'54"	110°13'40"	3
Salt Lake City	40°39'11"	112°12'06"	1
VIRGINIA			
Arlington	38°52'55"	77°06'18"	6
WASHINGTON			
Seattle	47°26'08"	122°17'35"	4
Cheney	47°33'14"	117°43'35"	1
WEST VIRGINIA			
Charleston	38°19'47"	81°39'36"	2
WISCONSIN			
Stevens Point	44°33'06"	89°25'27"	8
WYOMING			
Riverton	43°03'37"	108°27'23"	9

(a) Carriers authorized to construct and operate air-ground radiotelephone systems on the channels listed in § 22.857 may also construct and operate low power ground stations designed to provide service to airborne mobile stations on the ground, provided that no interference is caused to service provided by ground stations located in accordance with the geographical channel block layout or with paragraph (b) of this section. The antenna location of each such low power ground station may be anywhere that is at least 483 kilometers (300 miles) from all antenna locations of ground stations using the same channel block(s) in accordance with the geographical channel block layout or with paragraph (b) of this section.

(b) Ground station locations may be more than 1.61 kilometers (one mile) from all of the locations listed in this section, provided that they are at least 885 kilometers (550 miles) from all antenna locations of ground stations using the same channel block(s) in accordance with the geographical channel block layout or with this paragraph.

§ 22.861 Emission limitations.

Any appropriate emission type may be used to provide air-ground radiotelephone service on the channels listed in § 22.857, provided that the emission limitations of this section are met.

(a) Emission mask. The emission mask described in this paragraph applies instead of those in § 22.359. The power of any emission in each of the adjacent channels must be at least 30 dB below the power of the total emission. The power of any emission in any of the channels other than the one being used and the adjacent channels must be at least 50 dB below the power of the total emission.

(b) Airborne mobile transmitters. The power of any emission in each of the adjacent channels must not exceed -130 dBm at any ground station receiver, assuming a 0 dBi receive antenna. The power of any emission in any of the channels other than the one being used and the adjacent channels must not exceed -148 dBm at any ground station receiver, assuming a 0 dBi receive antenna.

(c) Ground station transmitters. The effective radiated power (ERP) of any emission outside of the frequency ranges set forth in § 22.857 must not exceed -10 dBm. The ERP of any emission in each of the adjacent channels must not exceed +10 dBm. The ERP of any emission in any of the channels other than the one being used and the adjacent channels must not exceed -5 dBm.

(d) If an emission on any frequency outside of the authorized bandwidth causes harmful interference, the FCC may require greater attenuation of that emission than required in paragraph (a) of this section.

§ 22.863 Transmitter frequency tolerance.

Ground station transmitter frequencies must be maintained within 0.1 parts per million (ppm) of the channel reference or center frequencies. Doppler shift correction must be used to ensure that the frequencies of the signals of airborne mobile stations received at ground stations remain within 0.1 ppm of the channel reference or center frequencies.

§ 22.865 Automatic channel selection procedures.

Operation of stations using the channels listed in § 22.857 must be in accordance with the procedures in this section.

(a) A communications channel is not available for use by a ground station if it is already in use by another ground station at the same location. Ground station equipment must automatically determine whether channels are in use by other ground stations at the same location, and may employ radio frequency signal monitoring to do so. For example, a communications channel may be determined to be in use if the received signal power on that channel at the ground station exceeds -115 dBm, which, assuming a 0 dB gain 895 MHz receive antenna, corresponds to a field strength of approximately 19 dBμV/m. Ground stations may employ an alternative method of determining whether a communications channel is in use provided that such procedure is at least as reliable as radio frequency signal monitoring.

(b) Data indicating which communications channels are available for use are transmitted by ground stations on the assigned control channels.

(c) A call is originated when an airborne mobile station selects a communications channel based on the received data from ground stations and other factors, and transmits an identification code (which identifies the specific ground station from which service is requested) on the selected communications channel. The ground station from which service has been requested may then obtain any necessary billing information and complete the call.

(d) A ground station may not transmit on a communications channel unless it has received the proper identification code. After a ground station has begun to transmit on a communications channel, that channel is not available to ground stations other than the one from which service has been requested until the call is terminated.

(e) A call is terminated by the ground station when either a hang-up signal is transmitted by the airborne mobile station, or the signal from the airborne mobile station on the communications channel is lost for a period of 15 continuous seconds. The hang-up signal is the on-off keying (50% duty cycle) of an unmodulated carrier over a period of one second with pulse duration of 5 milliseconds. However, if all carriers authorized to operate air-

ground systems using the channels listed in § 22.857 agree that an alternative hang-up signal and/or procedure would be more efficient or beneficial, such alternative hang-up signal and/or procedure may be used. The carriers must jointly give prior notification to the FCC if an alternative hang-up signal and/or procedure is used.

§ 22.867 Effective radiated power limits.

The effective radiated power (ERP) of ground and airborne stations operating on the channels listed in § 22.857 must not exceed the limits in this section.

(a) The ERP of airborne mobile station transmitters must not exceed 30 Watts.

(b) The ERP of ground station transmitters must not exceed 100 Watts.

(c) The ERP of low power ground station transmitters operating pursuant to paragraph (a) of § 22.859 must not exceed 1 Watt.

§ 22.869 Assignment of control channels.

The FCC selects and assigns exclusively one control channel to each commercial aviation air-ground licensee.

§ 22.871 Control channel transition period.

The rules in this section provide for a period of transition during which the experimental air-ground system operating on the channels listed in § 22.857 will be discontinued and replaced by a system operating in full compliance with the rules in this subpart. The experimental system may continue to exclusively use a 3.2 kHz control channel contained within the bandwidth of communications channel C-2 of each channel block until September 9, 1996. After that date communications channel C-2 will be available for use by all carriers authorized to operate an air-ground system on the channels listed in § 22.857.

§ 22.873 Construction period for commercial aviation air-ground systems.

Construction of a new commercial aviation air-ground system is considered to be completed for the purpose of this section and § 22.142 when the number of ground stations specified in this section are constructed and operational.

(a) Stage I. At least 25 ground stations must be constructed and operational within 3 years. Licensees must notify the FCC (FCC Form 489) as soon as this requirement is met. Service to subscribers may commence as soon as the notification is mailed. If service to subscribers is not commenced at that time, the notification must contain a statement to this effect.

(b) Stage II. At least 50 ground stations must be constructed and operational within 5 years. Nationwide service to subscribers must commence within 5 years. Licensees must notify the FCC (FCC Form 489) as soon as these requirements are met.

§ 22.875 Commercial aviation air-ground system application requirements.

Existing and prospective common carriers may file applications for authority to construct and operate a new nationwide air-ground system on the channels listed in § 22.857 only during window filing periods that may be announced by the FCC in Public Notices. In addition to the requirements elsewhere in this part, such applications must contain the following exhibits:

(a) Written Agreement. A signed agreement between the applicant and at least one airline or airline organization, authorizing the applicant to provide air-ground service on its aircraft.

(b) Financial Qualifications. At the time of filing its application an applicant must demonstrate that it has either a firm financial commitment or available financial resources necessary to construct 50 ground stations and operate for one year after initiation of nationwide air-ground service its proposed air-ground system.

(1) The demonstration of commitment must include and be sufficient to cover the realistic and prudent estimated costs of construction of 50 ground stations, operation and other initial expenses for one year after initiation of nationwide air-ground service. The estimated costs, operation costs and other initial expenses must be itemized. The estimated costs must include the anticipated costs of construction of each ground station.

(2) The firm financial commitment required above must be obtained from a state or federally chartered bank or savings and loan association, or the financial affiliate or subsidiary of an equipment supplier, and must contain a statement that the lender:

(i) Has examined the financial condition of the applicant including audited financial statements, and has determined that the applicant is creditworthy;

(ii) That the lender is committed to providing a sum certain to the particular applicant;

(iii) That the lender's willingness to enter into the commitment is based solely on its relationship with the applicant; and

(iv) That the commitment is not in any way guaranteed by any entity other than the applicant.

(3) Applicants intending to rely on personal or internal resources must submit:

(i) Audited financial statements certified within one year of the date of the application, indicating the availability of sufficient net liquid assets to construct and operate the proposed air-ground system for one year.

(A) The auditors must be certified public accountants.

(B) Net liquid assets is considered to be the excess of current assets (readily converted to cash) over current liabilities. In order to demonstrate ready convertibility into cash, the identity, liquidity and value of listed assets must be demonstrated. Non-liquid assets can be relied on if the marketability of those assets is documented.

(ii) An audited balance sheet, current within 60 days of filing, which clearly shows the continued availability of sufficient net liquid assets to construct and operate the proposed air-ground system for one year after nationwide service begins.

(c) Service Plan. A service plan containing:

(1) A map or other description of the planned geographic coverage area, including air space over the continental United

States, Alaska, Hawaii and other United States territories.

(2) A schedule for construction of 50 ground stations and provision of nationwide service to subscribers within 5 years from the grant of the initial authorization.

(3) A description of how the system will interconnect with the landline telephone network and be integrated with other air-ground systems, including a statement as to whether the system will be interconnected with international air-ground systems.

(d) Technical Exhibit. A technical description of the proposed system demonstrating compliance with all applicable technical requirements and describing how the proposed system would operate, if authorized. This exhibit must provide the following information:

(1) The number of ground stations to be used, their locations, and the type and quantity of equipment proposed for the system;

(2) A complete description of the procedures and data protocols to be used on the control channel;

(3) The modulation types to be used and their spectral characteristics;

(4) The effective radiated power and transmitter peak envelope power for all transmitters at each ground station location, and the effective radiated power of the airborne mobile stations;

(5) Antenna information as follows:

(i) For airborne mobile stations, the antenna type(s) to be used;

(ii) For ground stations, vertical and horizontal radiation patterns, antenna heights above ground level, antenna support structure heights above ground level, ground elevation above mean sea level and any relevant information (e.g. FAA approval) that may be helpful in determining whether ground station antennas require marking and lighting;

(6) Analytical data, including calculations, of potential interference within and without the spectrum for the air-ground system;

(7) A statement in compliance with the National Environmental Policy Act of 1969. See § 1.1301 et. seq.

Subpart H - Cellular Radiotelephone Service

§ 22.900 Scope.

The rules in this subpart govern the licensing and operation of cellular radiotelephone systems. Licensing and operation of these systems are also subject to rules elsewhere in this part that apply generally to the Public Mobile Services. In case of conflict, however, the rules in this subpart govern.

§ 22.901 Cellular service requirements and limitations.

Cellular system licensees must provide cellular mobile radiotelephone service upon request to all cellular subscribers in good standing, including roamers, while such subscribers are located within any portion of the authorized cellular geographic service area (see § 22.911) where facilities have been constructed and service to subscribers has commenced. A cellular system licensee may refuse or terminate service,however, subject to any applicable state or local requirements for timely notification, to any subscriber who operates a cellular telephone in an airborne aircraft in violation of § 22.925 or otherwise fails to cooperate with the licensee in exercising operational control over mobile stations pursuant to § 22.927.

(a) Service area information. Licensees must inform prospective subscribers of the area in which reliable service can be expected.

(b) Lack of capacity. If a licensee refuses a request for cellular service because of a lack of system capacity, it must report that fact to the FCC in writing, explaining how it plans to increase capacity.

(c) Dispatch service. Cellular systems must not offer or provide dispatch service.

(d) Alternative technologies and auxiliary services. Licensees of cellular systems may use alternative cellular technologies and/or provide auxiliary common carrier services, including personal communications services (as defined in Part 24 of this chapter) on the communication channels in their assigned channel block, provided that cellular service is available to subscribers whose mobile equipment conforms to the cellular system compatibility specification (see § 22.933).

(1) Licensees must perform or obtain an engineering analysis to ensure that interference to the service of other cellular systems will not result from the implementation of auxiliary services or alternative cellular technologies.

(2) Alternative technology and auxiliary service operations are exempt from the channeling requirements of § 22.905, the modulation requirements of § 22.915, the wave polarization requirements of § 22.367, the compatibility specification in § 22.933 and the emission limitations of §§ 22.357 and 22.917, except for emission limitations that apply to emissions outside the assigned channel block.

(e) Provision of resale capacity. Each cellular system licensee must permit unrestricted resale of its service, except that a licensee may apply resale restrictions to licensees of cellular systems on the other channel block in its market after the five year build-out period for licensees on the other channel block has expired.

§ 22.903 Conditions applicable to former Bell Operating Companies.

Ameritech Corporation, Bell Atlantic Corporation, BellSouth Corporation, NYNEX Corporation, Pacific Telesis Group, Southwestern Bell Corporation, U.S. West, Inc., their successors in interest and affiliated entities (BOCs) may engage in the provision of cellular service only in accordance with the conditions in this section, unless otherwise authorized by the FCC. BOCs may, subject to other provisions of law, have a controlling or lesser interest in or be under common control with separate corporations that provide cellular service only under the following conditions:

(a) Access to landline facilities. BOCs must not sell, lease or otherwise make available to the separate corporation any transmission facilities that are used in any way for the provision of its landline telephone services, except on a compensatory, arm's-length basis. Separate corporations must not own any facilities for the provision of landline telephone service. Access to landline exchange and transmission facilities for the provision of cellular service must be obtained by separate corporations on the same

terms and conditions as those facilities are made available to other entities.

(b) Independence. Separate corporations must operate independently in the provision of cellular service. Each separate corporation must -

(1) Maintain its own books of account;

(2) Have separate officers;

(3) Employ separate operating, marketing, installation and maintenance personnel; and,

(4) Utilize separate computer and transmission facilities in the provision of cellular services.

(c) Research or development. Any research or development performed by BOCs for separate corporations, either separately or jointly, must be on a compensatory basis.

(d) Transactions. All transactions between the separate corporation and the BOC or its affiliates that involve the transfer, either direct or by accounting or other record entries, of money, personnel, resources, other assets or any things of value, shall be reduced to writing. A copy of any contract, agreement or other arrangement entered between such entities with regard to interconnection with landline network exchange and transmission facilities must be filed with the FCC within thirty days after the contract, agreement, or other arrangement is made. A copy of all other contracts, agreements or arrangements between such entities shall be kept available by the separate corporation for inspection upon reasonable request by the FCC. The provision shall not apply to any transaction governed by the provision of an effective state or federal tariff.

(e) Promotion. BOCs must not engage in the sale or promotion of cellular service on behalf of the separate corporation. However, this does not prohibit joint advertising or promotional efforts by the landline carrier and its cellular affiliate.

(f) Proprietary information. BOCs must not provide to any such separate corporation any customer proprietary information, unless such information is publicly available on the same terms and conditions.

(g) Provision of other Public Mobile services. Separate corporations may include, as part of their operations, the provision of other Public Mobile services.

§ 22.905 Channels for cellular service.

The following channels are allocated for block assignment in the Cellular Radiotelephone Service. All channels have a bandwidth of 40 kHz and are designated by their center frequencies in MegaHertz.

CHANNEL BLOCK A

416 communication channel pairs

base	mobile	base	mobile
869.040	824.040	890.010	845.010
869.070	824.070	890.040	845.040
⋮	⋮	⋮	⋮
879.990	834.990	891.480	846.480

21 control channel pairs

834.390	879.390
834.420	879.420
⋮	⋮
834.990	879.990

CHANNEL BLOCK B

416 communication channel pairs

base	mobile	base	mobile
880.020	835.020	891.510	846.510
880.050	835.050	891.540	846.540
⋮	⋮	⋮	⋮
889.980	844.980	893.970	848.970

21 control channel pairs

835.020	880.020
835.050	880.050
⋮	⋮
835.620	880.620

(a) Each channel block is assigned exclusively to one licensee for use in that licensee's cellular geographic service area (see § 22.911).

(b) Licensees may use any channel pair from the assigned channel block at any of their transmitter locations, subject to the prior coordination requirements of § 22.907.

§ 22.907 Coordination of channel usage.

Licensees in the Cellular Radiotelephone Service must coordinate, with the appropriate parties, channel usage at each transmitter location within 121 kilometers (75 miles) of any transmitter locations authorized to other licensees or proposed by tentative selectees or other applicants, except those with mutually exclusive applications.

(a) Licensees must cooperate and make reasonable efforts to resolve technical problems that may inhibit effective and efficient use of the cellular radio spectrum; however, licensees are not obligated to suggest extensive changes to or redesign other licensees' cellular systems. Licensees must make reasonable efforts to avoid blocking the growth of other cellular systems that are likely to need additional capacity in the future.

(b) If technical problems are addressed by an agreement or operating arrangement between the licensees that would result in a reduction of quality or capacity of either system, the licensees must notify the FCC by letter.

§ 22.909 Cellular markets.

Cellular markets are standard geographic areas used by the FCC for administrative convenience in the licensing of cellular systems. Cellular markets comprise Metropolitan Statistical Areas (MSAs) and Rural Service Areas (RSAs). All cellular markets and the counties they comprise are listed in Public Notice Report No. CL-92-40 "Common Carrier Public Mobile Services Information, Cellular MSA/RSA Markets and Counties", dated January 24, 1992, DA 92-109, 7 FCC Rcd 742 (1992).

(a) MSAs. Metropolitan Statistical Areas are 306 areas, including New England County Metropolitan Areas and the Gulf of Mexico Service Area (water area of the Gulf of Mexico, border is the coastline), defined by the Office of Management and Budget, as modified by the FCC.

(b) RSAs. Rural Service Areas are 428 areas, other than MSAs, established by the FCC.

§ 22.911 Cellular geographic service area.

The Cellular Geographic Service Area (CGSA) of a cellular system is the geographic area considered by the FCC to be served by the cellular system. The CGSA is the area within which cellular systems are entitled to protection and within which adverse effects for the purpose of determining whether a petitioner has standing are recognized.

(a) CGSA determination. The CGSA is the composite of the service areas of all of the cells in the system, excluding any area outside the cellular market boundary, except as provided in paragraph (c) of this section, and excluding any area within the CGSA of another cellular system. The service area of a cell is the area within its service area boundary (SAB). The distance to the SAB is calculated as a function of effective radiated power (ERP) and antenna center of radiation height above average terrain (HAAT), height above sea level (HASL) or height above mean sea level (HAMSL).

(1) Except as provided in paragraphs (a)(2) and (b) of this section, the distance from a cell transmitting antenna to its SAB along each cardinal radial is calculated as follows:

$$d = 2.531 \times h^{0.34} \times p^{0.17}$$

where d is the radial distance in kilometers
h is the radial antenna HAAT in meters
p is the radial ERP in Watts

(2) For the cellular systems authorized to serve the Gulf of Mexico MSA, the distance from a cell transmitting antenna to its SAB along each cardinal radial is calculated as follows:

$$d = 6.895 \times h^{0.30} \times p^{0.15}$$

where d is the radial distance in kilometers
h is the radial antenna HAAT in meters
p is the radial ERP in Watts

(3) The value used for h in the formula in paragraph (a)(2) of this section must not be less than 8 meters (26 feet) HASL (or HAMSL, as appropriate for the support structure). The value used for h in the formula in paragraph (a)(1) of this section must not be less than 30 meters (98 feet) HAAT, except that for unserved area applications proposing a cell with an ERP not exceeding 10 Watts, the value for h used in the formula in paragraph (a)(1) of this section to determine the service area boundary for that cell may be less than 30 meters (98 feet) HAAT, but not less than 3 meters (10 feet) HAAT.

(4) The value used for p in the formulas in paragraphs (a)(1) and (a)(2) of this section must not be less than 0.1 Watt or 27 dB less than (1/500 of) the maximum ERP in any direction, whichever is more.

(5) Whenever use of the formula in paragraph (a)(1) of this section pursuant to the exception contained in paragraph (a)(3) of this section results in a calculated distance that is less than 5.4 kilometers (3.4 miles), the radial distance to the service area boundary is deemed to be 5.4 kilometers (3.4 miles).

(6) The distance from a cell transmitting antenna to the SAB along any radial other than the eight cardinal radials is calculated by linear interpolation of distance as a function of angle.

NOTE: On May 13, 1994, the United States Court of Appeals for the District of Columbia Circuit instructed the FCC to vacate the provisions of old § 22.903(a), now § 22.911(a), insofar as they apply to cellular systems licensed to serve the Gulf of Mexico MSA (GMSA), pending reconsideration of an issue remanded to the FCC in that decision. See Petroleum Communications, Inc. v. Federal Communications Commission, No. 92-1670 and RVC Services, Inc., D/B/A Coastel Communications Company v. Federal Communications Commission, No. 93-1016, ___ F.2d ___, ___ (D.C. Cir. 1994). Accordingly, notwithstanding the provisions of § 22.911(a), until further notice, the authorized CGSAs of the cellular systems licensed to serve the GMSA are those which were authorized prior to January 11, 1993.

(b) Alternative CGSA determination. If a carrier believes that the method prescribed in paragraph (a) of this section produces a CGSA that departs significantly (±20% in the service area of any cell) from the geographical area where reliable cellular service is actually provided, the carrier may submit, as an exhibit to an application for modification of the CGSA (FCC Form 401), a depiction of what the carrier believes the CGSA should be. Such submissions must be accompanied by one or more supporting propagation studies using methods appropriate for the 800-900 MHz frequency range, including all supporting data and calculations, and/or by extensive field strength measurement data. For the purpose of such submissions, cellular service is considered to be provided in all areas, including "dead spots", between the transmitter location and the locus of points where the predicted or measured median field strength finally drops to 32 dBμV/m (i.e. does not exceed 32 dBμV/m further out). If, after consideration of such submissions, the FCC finds that adjustment to a CGSA is warranted, the FCC may grant the application.

(1) The alternative CGSA determination must define the CGSA in terms of distances from cell sites to cell SABs along the eight cardinal radials, with other points along the SAB determined in accordance with paragraph (a)(6) of this section. The distances used for the cardinal radials must be representative of the coverage within the 45° sectors, as depicted by the alternative CGSA

determination.

(2) If an uncalibrated predictive model is used to depict the CGSA, the alternative CGSA determination must identify factors (e.g. terrain roughness or features) that could plausibly account for the difference between actual coverage and that defined by the formula in paragraph (a)(1) of this section. If actual measurements or a measurement-calibrated predictive model are used to depict the CGSA, and this fact is disclosed in the alternative CGSA determination, it is not necessary to offer an explanation of the difference between actual coverage and that defined by the formula in paragraph (a)(1) of this section. If the formula in paragraph (a)(1) of this section is clearly inapplicable for the cell(s) in question (e.g. for microcells), this should be disclosed in the alternative CGSA determination.

(3) The provision for alternative CGSA determinations was made in recognition that the formula in paragraph (a)(1) of this section is a general model that provides a reasonable approximation of coverage in most land areas, but may substantially under-predict or over-predict coverage in specific areas with unusual terrain roughness or features, and may be inapplicable for certain purposes, e.g. cells with a radial distance to the SAB less than 8 kilometers (5 miles). In such cases, alternative methods that utilize more specific models are appropriate. Accordingly, the FCC does not consider use of the formula in paragraph (a)(1) of this section with parameters outside of the limits in paragraphs (a)(3), (a)(4) and (a)(5) of this section or with data for radials other than the cardinal radials to be a valid alternative method for determining the CGSA of a cellular system.

(c) CGSA extension areas. SAB extensions (areas outside of the cellular market boundary, but within the service area as calculated using the methods of paragraph (a) of this section) are part of the CGSA only under the following circumstances:

(1) During the five year build-out period of the system in the cellular market containing the extension, the licensees of systems on the same channel block in adjacent cellular markets may agree that the portion of the service area of one system that extends into unserved area in the other system's cellular market is part of the CGSA of the former system.

(2) At the end of the five year build-out period of the system in the cellular market containing the extension, the portion of the service area that extends into unserved area in another cellular market becomes part of the CGSA, provided that the licensee of the system so extended files a system information update in accordance with § 22.947(c).

(3) For original systems in MSAs, extensions of the CGSA authorized by the FCC are part of the CGSA to the extent authorized.

(d) Protection afforded. Within the CGSA determined in accordance with this section, cellular systems are entitled to protection from co-channel and first-adjacent channel interference and from capture of subscriber traffic by adjacent systems on the same channel block.

(1) Licensees must cooperate in resolving co-channel and first-adjacent channel interference by changing channels used at specific cells or by other technical means.

(2) Protection from capture of subscriber traffic is applied and limited in accordance with the following:

(i) Subscriber traffic is captured if a SAB of one cellular system overlaps the CGSA of another operating cellular system. Therefore, cellular licensees must not begin to operate any facility that would cause a SAB to overlap the existing CGSA of another cellular system on the same channel block, without first obtaining the written consent of the licensee of that system. However, cellular licensees may continue to operate existing facilities that produce a SAB overlapping a subsequently-authorized portion of the CGSA of another cellular system on the same channel block until the licensee of that system requests that the SAB be removed from its CGSA. Such request may be made directly to the licensee of the overlapping system or to the FCC. In the event such request is made, the licensee of the overlapping system must reduce the transmitting power or antenna height (or both) at the pertinent cell site as necessary to remove the SAB from the CGSA of the other system, unless a written consent from the licensee of the other system allowing the SAB to remain is obtained. Cellular licensees may enter into contracts with the licensees of other cellular systems on the same channel block to allow SABs to overlap CGSAs.

(ii) Cellular licensees are at most entitled to have a CGSA free of SABs from other cellular systems on the same channel block.

(e) Unserved areas. Unserved areas are areas outside of all existing CGSAs (on either of the channel blocks), to which the Communications Act of 1934, as amended, is applicable.

§ 22.912 Service area boundary extensions.

This section contains rules governing service area boundary (SAB) extensions. SAB extensions are areas outside of the cellular market boundary, but within the service area as calculated using the methods of § 22.911(a). Cellular systems must be designed to comply with the rules in this section. Applications proposing systems that would not comply with the rules in this section are defective. Service within SAB extensions is not protected from interference or capture under § 22.911(d) unless and until the area within the SAB extension becomes a part of the cellular geographic service area (CGSA) in accordance with § 22.911(c).

(a) De minimis extensions. Except as restricted in paragraph (d) of this section, SABs may extend into adjacent cellular markets if such extensions are de minimis, are demonstrably unavoidable for technical reasons of sound engineering design, and do not extend into the CGSA of any other licensee's cellular system on the same channel block (unless the licensee of such other system consents to the extension) or into any adjacent cellular market on a channel block for which the five year build-out period has expired.

(b) Contract extensions. Except as restricted in paragraph (d) of this section, licensees of cellular systems on the same channel block in adjacent cellular markets may, at any time, enter into contracts with applicants or other licensees to allow SAB extensions into their CGSA only (not into unserved area). Except as restricted in paragraph (d) of this section, licensees of the first authorized cellular systems on the same channel block in adjacent cellular markets may agree to allow SAB extensions into their CGSA and/or unserved area in their cellular markets during the five year build-out period of the market into which the SAB extends.

(c) Same applicant/licensee. Except as restricted in paragraph (d) of this section, licensees of cellular systems that are also an applicant or licensee on the same channel block in adjacent cellular

markets may, at any time, allow or propose SAB extensions from their adjacent market system into their CGSA only (not into unserved area). Except as restricted in paragraph (d) of this section, licensees of the first authorized cellular systems that are also an applicant or licensee on the same channel block in adjacent cellular markets may allow or propose SAB extensions from their adjacent market system into their CGSA and/or unserved area in their cellular markets during the five year build-out period of the market into which the SAB extends.

(d) Unserved area systems. Phase I initial cellular applications must not propose SAB extensions. Phase I sole major modification applications and Phase II applications may propose SAB extensions, subject to the conditions in this section.

§ 22.913 Effective radiated power limits.

The effective radiated power (ERP) of transmitters in the Cellular Radiotelephone Service must not exceed the limits in this section.

(a) Maximum ERP. The effective radiated power (ERP) of base transmitters and cellular repeaters must not exceed 500 Watts. The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

(b) Height-power limit. The ERP of base transmitters must not exceed the amount that would result in an average distance to the service area boundary of 79.1 kilometers (49 miles) for cellular systems authorized to serve the Gulf of Mexico MSA and 40.2 kilometers (25 miles) for all other cellular systems. The average distance to the service area boundary is calculated by taking the arithmetic mean of the distances determined using the procedures specified in § 22.911 for the eight cardinal radial directions.

(c) Coordination exemption. Licensees need not comply with the height-power limit in paragraph (b) of this section if the proposed operation is coordinated with the licensees of all affected cellular systems on the same channel block within 121 kilometers (75 miles) and concurrence is obtained.

§ 22.915 Modulation requirements.

Cellular systems must be capable of providing service using the types of modulation described in the cellular system compatibility specification.

(a) Non-voice modulating signals. Modulating signals other than voice signals, such as data signals, may be transmitted, provided the resulting modulated emission exhibits spectral characteristics not exceeding those resulting from voice modulation.

(b) Modulation levels. The levels of the modulating signals must be set to the values specified in this paragraph, and must be maintained within ±10% of those values.

(1) The instantaneous frequency deviation resulting from the main modulating signal must be ±12 kHz.

(2) The instantaneous frequency deviation resulting from the supervisory audio tones must be ±2 kHz.

(3) The instantaneous frequency deviation resulting from the signaling tone must be ±8 kHz.

(4) The instantaneous frequency deviation resulting from wideband data signals must be ±8 kHz.

(c) Deviation limitation circuitry. Cellular transmitters must be equipped with circuitry that automatically prevents modulation levels for voice transmissions from exceeding the limits specified in this section.

(d) Audio filter characteristics. Except as provided in § 22.917, radiotelephony signals applied to the modulator from the modulation limiter must be attenuated as a function of frequency as specified in this paragraph.

(1) For mobile stations, these signals must be attenuated, relative to the level at 1 kHz, as follows:

(i) In the frequency ranges of 3.0 to 5.9 kHz and 6.1 to 15.0 kHz, signals must be attenuated by at least 40 log (f÷3) dB, where f is the frequency of the signal in kHz.

(ii) In the frequency range of 5.9 to 6.1 kHz, signals must be attenuated at least 35 dB.

(iii) In the frequency range above 15 kHz, signals must be attenuated at least 28 dB.

(2) For base stations, these signals shall be attenuated, relative to the level at 1 kHz, as follows:

(i) In the frequency range of 3 to 15 kHz, signals must be attenuated by at least 40 log (f÷3) dB, where f is the frequency of the signal in kHz.

(ii) In the frequency range above 15 kHz, signals must be attenuated by at least 28 dB.

(3) Filtering is not required for the supervisory audio tones, signaling tones or wideband data signals.

§ 22.917 Emission limitations for cellular.

The rules in this section govern the spectral characteristics of emissions in the Cellular Radiotelephone Service.

(a) Analog radiotelephony emissions. F3E emissions must be used only on the communication channels.

(b) F3E/F3D emission mask for use with audio filter. For F3E and F3D emissions, except as provided in paragraph (c) of this section, the mean power of emissions must be attenuated below the mean power of the unmodulated carrier wave (P) as follows:

(1) On any frequency removed from the carrier frequency by more than 20 kHz but not more than 45 kHz:

at least 26 dB;

(2) On any frequency removed from the carrier frequency by more than 45 kHz, up to the first multiple of the carrier frequency:

at least 60 dB or 43 + 10 log P dB, whichever is the lesser attenuation.

(c) Alternative F3E/F3D emission mask. For F3E and F3D emissions, transmitters may comply with the emission limitations in

this paragraph in lieu of compliance with paragraph (b) of this section and the audio filter requirement of § 22.915.

(1) The mean power of any emission removed from the carrier frequency by a displacement frequency (f_d in kHz) must be attenuated below the mean power of the unmodulated carrier (P) as follows:

(i) On any frequency removed from the carrier frequency by more than 12 kHz but not more than 20 kHz:

at least 117 log (f_d÷12) dB;

(ii) On any frequency removed from the carrier frequency by more than 20 kHz, up to the first multiple of the carrier frequency:

at least 100 log (f_d÷11) dB or 60 dB or 43 + 10 log P dB, whichever is the lesser attenuation;

(2) For mobile stations, modulating signals other than the supervisory audio tone in the frequency range of 5.9 to 6.1 kHz must be attenuated, relative to the level at 1 kHz, at least 35 dB.

(d) F1D emission mask. For F1D emissions, the mean power of emissions must be attenuated below the mean power of the unmodulated carrier (P) as follows:

(1) On any frequency removed from the carrier frequency by more than 20 kHz but not more than 45 kHz:

at least 26 dB;

(2) On any frequency removed from the carrier frequency by more than 45 kHz but not more than 90 kHz:

at least 45 dB;

(3) On any frequency removed from the carrier frequency by more than 90 kHz, up to the first multiple of the carrier frequency:

at least 60 dB or 43 + 10 log P dB, whichever is the lesser attenuation.

(e) Out of band emissions. The mean power of emissions must be attenuated below the mean power of the unmodulated carrier (P) on any frequency twice or more than twice the fundamental frequency by:

at least 43 + 10 log P dB.

(f) Mobile emissions in base frequency range. The mean power of any emissions appearing in the base station frequency range from cellular mobile transmitters operated must be attenuated to a level not to exceed -80 dBm at the transmit antenna connector.

(g) Interference from spurious emissions. If any emission from a transmitter operating in this service results in interference to users of another radio service, the FCC may require a greater attenuation of that emission than specified in this section.

(h) Measurement procedure. The following spectrum analyzer bandwidth settings should be used for measurement of spurious emissions:

(1) When operating in the radiotelephony mode or the supervisory audio tone mode:

(i) For any emission not more than 45 kHz removed from the carrier frequency: 300 Hz;

(ii) For any emission more than 45 kHz removed from the carrier frequency: 30 kHz.

(2) When operating in the wideband data mode or the signaling tone mode:

(i) For any emission not more than 60 kHz removed from the carrier frequency: 300 Hz;

(ii) For any emission more than 60 kHz removed from the carrier frequency: 30 kHz.

§ 22.919 Electronic serial numbers.

The Electronic Serial Number (ESN) is a 32 bit binary number that uniquely identifies a cellular mobile transmitter to any cellular system.

(a) Each mobile transmitter in service must have a unique ESN.

(b) The ESN host component must be permanently attached to a main circuit board of the mobile transmitter and the integrity of the unit's operating software must not be alterable. The ESN must be isolated from fraudulent contact and tampering. If the ESN host component does not contain other information, that component must not be removable, and its electrical connections must not be accessible. If the ESN host component contains other information, the ESN must be encoded using one or more of the following techniques:

(1) Multiplication or division by a polynomial;

(2) Cyclic coding;

(3) The spreading of ESN bits over various non-sequential memory locations.

(c) The ESN must be factory set and must not be alterable, transferable, removable or otherwise able to be manipulated. Cellular mobile equipment must be designed such that any attempt to remove, tamper with, or change the ESN chip, its logic system, or firmware originally programmed by the manufacturer will render the mobile transmitter inoperative.

§ 22.923 Cellular system configuration.

Mobile stations communicate with and through base transmitters only. Base transmitters communicate with mobile stations directly or through cellular repeaters. Auxiliary test stations may communicate with base or mobile stations for the purpose of testing equipment.

§ 22.925 Prohibition on airborne operation of cellular telephones.

Cellular telephones installed in or carried aboard airplanes, balloons or any other type of aircraft must not be operated while such aircraft are airborne (not touching the ground). When any aircraft leaves the ground, all cellular telephones on board that aircraft must be turned off. The following notice must be posted on

or near each cellular telephone installed in any aircraft:

"The use of cellular telephones while this aircraft is airborne is prohibited by FCC rules, and the violation of this rule could result in suspension of service and/or a fine. The use of cellular telephones while this aircraft is on the ground is subject to FAA regulations."

§ 22.927 Responsibility for mobile stations.

Mobile stations that are subscribers in good standing to a cellular system, when receiving service from that cellular system, are considered to be operating under the authorization of that cellular system. Cellular system licensees are responsible for exercising effective operational control over mobile stations receiving service through their cellular systems. Mobile stations that are subscribers in good standing to a cellular system, while receiving service from a different cellular system, are considered to be operating under the authorization of such different system. The licensee of such different system is responsible, during such temporary period, for exercising effective operational control over such mobile stations as if they were subscribers to it.

§ 22.929 Application requirements for the Cellular Radiotelephone Service.

In addition to information required by Subparts B and D of this part, applications for authorization in the Cellular Radiotelephone Service must contain the applicable supplementary information described in this section. Initial applications for new cellular systems must also comply with § 22.953 of this part.

(a) Administrative information. The following information is required either by FCC Form 401, Schedule C, or as an exhibit.

(1) The number of transmitter sites for which authorization is requested;

(2) The call sign(s) of other facilities in the same area that are ultimately controlled by the real party in interest to the application;

(3) If the application involves a service area boundary (SAB) extension (see § 22.912), a statement as to whether the five year build-out period for the system on the relevant channel block in the market into which the SAB extends has elapsed, and whether the SAB extends into any unserved area in that market.

(b) Technical information. The following information is required by FCC Form 401, Schedule C.

(1) Location description; city; county; state; geographical coordinates correct to ±1 second, the datum used (NAD 27 or NAD 83), site elevation above mean sea level, proximity to adjacent market boundaries and international borders;

(2) Antenna manufacturer, model number and type, antenna height to tip above ground level, the height of the center of radiation of the antenna above the average terrain, the height of the antenna center of radiation above the average elevation of the terrain along each of the 8 cardinal radials, antenna gain in the maximum lobe, the beamwidth of the maximum lobe of the antenna, a polar plot of the horizontal gain pattern of the antenna, the electric field polarization of the wave emitted by the antenna when installed as proposed;

(3) The channel block requested, the maximum effective radiated power, the effective radiated power in each of the cardinal radial directions.

(c) Maps. If the application proposes a change in the CGSA, it must include full size and reduced maps, and supporting engineering, as described in § 22.953(a)(5)(i)-(iii) of this part.

§ 22.933 Cellular system compatibility specification.

Except as provided in § 22.901(d), equipment used in the Cellular Radiotelephone Service must be designed in compliance with the technical specifications for compatibility of mobile and base stations in the Cellular Radiotelephone Service contained in "Cellular System Mobile Station-Land Station Compatibility Specification" (April 1981 Ed.), Office of Engineering and Technology Bulletin No. 53. This bulletin is contained in Appendix D to the Report and Order in CC Docket No. 79-318, and was published in the Federal Register of May 21, 1981. Copies may be obtained from the FCC's copying contractor. Special operational features that have been developed by joint industry consensus through the Telecommunications Industry Association (TIA) and established as a TIA standard may be activated at the option of the cellular licensee, provided that the compatibility of equipment within the Cellular Radiotelephone Service as specified in OET Bulletin No. 53 is not adversely affected.

§ 22.935 Procedures for comparative renewal proceedings.

The procedures in this section apply to comparative renewal proceedings in the Cellular Radiotelephone Service.

(a) If one or more applications competing with an application for renewal of a cellular authorization are filed, the renewal applicant must file with the FCC an original and four copies of its renewal expectancy showing. This filing must be submitted no later than 60 days after the date of the Public Notice listing as acceptable for filing the renewal application and the competing applications.

(b) Interested parties may file petitions to deny any of the mutually exclusive applications. Any such petitions to deny must be filed no later than 30 days after the date that the renewal applicant submitted its renewal expectancy showing. Applicants may file replies to any petitions to deny that are filed. Any such replies must be filed no later than 15 days after the date that the petition(s) to deny were filed. No further pleadings will be accepted.

(c) In most instances, the renewal application and any competing applications will be designated for a two-step hearing procedure. An Administrative Law Judge (Presiding Judge) will conduct a threshold hearing (step one), in which both the licensee and the competing applicants will be parties, to determine whether the renewal applicant deserves a renewal expectancy. If the order designating the applications for hearing specifies any basic qualifying issues against the licensee, those issues will be tried in this threshold hearing. If the Presiding Judge determines that the renewal applicant is basically qualified and due a renewal expectancy, the competing applicants will be found ineligible for further consideration and their applications will be denied. If the Presiding Judge determines that the renewal applicant does not merit a renewal expectancy but is otherwise qualified, then all of the applications will be considered in a comparative hearing (step two).

(d) Any competing applicant may request a waiver of the threshold hearing (step one), if such applicant demonstrates that its

proposal so far exceeds the service already being provided that there would be no purpose in making a threshold determination as to whether the renewal applicant deserved a renewal expectancy vis-a-vis such a competing applicant. Any such waiver request must be filed at the time the requestor's application is filed. Petitions opposing such waiver requests may be filed. Any such petitions must be filed no later than 30 days after the date that the renewal applicant submitted its renewal expectancy showing. Replies to any petitions opposing such waiver requests may be filed. Any such replies must be filed no later than 15 days after the date that the petition(s) were filed. Any waiver request submitted pursuant to this paragraph will be acted upon prior to designating the applications for hearing. If a request to waive the threshold hearing (step one) is granted, the renewal expectancy issue will be designated as part of the comparative hearing (step two), and will remain the most important comparative factor in deciding the case, as provided in § 22.940(a).

(e) If the Presiding Judge issues a ruling in the threshold hearing (step one) that denies the licensee a renewal expectancy, all of the applicants involved in the proceeding will be allowed to file direct cases no later than 90 days after the release date of the Presiding Judge's ruling. Rebuttal cases must be filed no later than 30 days after the date that the direct cases were filed.

(f) The Presiding Judge shall use the expedited hearing procedures delineated in this paragraph in both threshold (step one) and comparative (step two) hearings conducted in comparative cellular renewal proceedings.

(1) The Presiding Judge will schedule a first hearing session as soon as practicable after the date for filing rebuttal evidence. This first session will be an evidentiary admission session at which each applicant will identify and offer its previously circulated direct and rebuttal exhibits, and each party will have an opportunity to lodge objections.

(2) After accepting the exhibits into evidence, the Presiding Judge will entertain motions to cross-examine and rule whether any sponsoring witness needs to be produced for cross-examination. Determination of what, if any, cross-examination is necessary is within the sound judicial discretion of the Presiding Judge, the prevailing standard being whether the person requesting cross-examination has persuasively demonstrated that written evidence is ineffectual to develop proof. If cross-examination is necessary, the Presiding Judge will specify a date for the appearance of all witnesses. In addition, if the designation order points out an area where additional underlying data is needed, the Presiding Judge will have the authority to permit the limited use of discovery procedures. Finally, the Presiding Judge may find that certain additional testimony or cross-examination is needed to provide a complete record for the FCC. If so, the Presiding Judge may schedule a further session.

(3) After the hearing record is closed, the Presiding Judge may request Proposed Findings of Fact and Conclusions of Law to be filed no later than 30 days after the final hearing session. Replies are not permitted except in unusual cases and then only with respect to the specific issues named by the Presiding Judge.

(4) The Presiding Judge will then issue an Initial Decision, preferably within 60 days of receipt of the last pleadings. If mutually exclusive applications are before the Presiding Judge, the Presiding Judge will determine which applicant is best qualified. The Presiding Judge may also rank the applicants in order of merit if there are more than two.

(5) Parties will have 30 days in which to file exceptions to the Initial Decision. The Common Carrier Bureau has authority to determine, at the time of designation for hearing, that such exceptions will be taken directly to the FCC rather than to the Review Board.

§ 22.936 Dismissal of applications in cellular renewal proceedings.

Any applicant that has filed an application in the Cellular Radiotelephone Service that is mutually exclusive with an application for renewal of a cellular authorization (competing application), and seeks to resolve the mutual exclusivity by requesting dismissal of its application, must obtain the approval of the FCC.

(a) If a competing applicant seeks to dismiss its application prior to the Initial Decision stage of the hearing on its application, it must submit to the FCC a request for approval of the dismissal of its application, a copy of any written agreement related to the withdrawal or dismissal, and an affidavit setting forth:

(1) A certification that neither the petitioner nor its principals has received or will receive any money or other consideration in excess of legitimate and prudent expenses in exchange for the withdrawal or dismissal of the application, except that this provision does not apply to dismissal or withdrawal of applications pursuant to bona fide merger agreements;

(2) The exact nature and amount of any consideration received or promised;

(3) An itemized accounting of the expenses for which it seeks reimbursement; and

(4) The terms of any oral agreement related to the withdrawal or dismissal of the application.

(b) In addition, within 5 days of the filing date of the applicant or petitioner's request for approval, each remaining party to any written or oral agreement must submit an affidavit setting forth:

(1) A certification that neither the applicant nor its principals has paid or will pay money or other consideration in excess of the legitimate and prudent expenses of the petitioner in exchange for withdrawing or dismissing the application; and

(2) The terms of any oral agreement relating to the withdrawal or dismissal of the application.

(c) For the purposes of this section:

(1) Affidavits filed pursuant to this section must be executed by the filing party, if an individual, a partner having personal knowledge of the facts, if a partnership, or an officer having personal knowledge of the facts, if a corporation or association.

(2) Applications are deemed to be pending before the FCC from the time the application is filed with the FCC until such time as an order of the FCC granting, denying or dismissing the application is no longer subject to reconsideration by the FCC or to review by any court.

(3) "Legitimate and prudent expenses" are those expenses

reasonably incurred by a party in preparing to file, filing, prosecuting and/or settling its application for which reimbursement is sought.

(4) "Other consideration" consists of financial concessions, including, but not limited to, the transfer of assets or the provision of tangible pecuniary benefit, as well as non-financial concessions that confer any type of benefit on the recipient.

§ 22.937 Demonstration of financial qualifications.

Except as provided in paragraphs (g) and (h) of this section, each applicant for a new cellular system must demonstrate that it has, at the time the application is filed, either a separate market-specific firm financial commitment or available financial resources sufficient to construct and operate for one year the proposed cellular system. Each application for assignment of license or consent to transfer of control must demonstrate the financial ability of the proposed assignee or transferee to acquire and operate the facilities.

(a) Estimated costs. The demonstration required by this section must include a realistic and prudent estimate of the costs of construction, operating and other initial expenses for one year.

(b) Source of financing. The firm financial commitment must be obtained from a state or federally chartered bank or savings and loan association, another recognized financial institution, or the financial arm of a capital equipment supplier. The firm financial commitment may be contingent upon the applicant's obtaining an authorization.

(c) Lender's statement. The firm financial commitment must contain a statement that:

(1) The lender has examined the financial condition of the applicant, including audited financial statements if applicable, and has determined that the applicant is creditworthy;

(2) The lender has examined the financial viability of each proposal for which the applicant intends to use the commitment;

(3) The lender is committed to providing a sum certain to the particular applicant;

(4) The lender's willingness to enter into the commitment is based solely on its relationship with the applicant; and,

(5) The commitment is not in any way guaranteed by any entity other than the applicant.

(d) Showings of financial resources. Applicants relying upon personal or internal financial resources must submit the following:

(1) Audited financial statements, certified within one year of the date of the cellular application, that show the availability of sufficient net current assets to construct and operate for one year the proposed cellular system;

(2) A balance sheet current within 60 days of the date of filing that shows the continued availability of sufficient net current assets to construct and operate for one year the proposed cellular system; and,

(3) A certification by the applicant or an officer of the applicant organization attesting to the validity of the unaudited balance sheet.

(e) Parent corporation financing. Applicants relying upon financing obtained from parent corporations must submit the showings listed in paragraph (d) of this section as the information pertains to the parent corporation.

(f) Notice upon default. In addition to the disclosures required by paragraph (c) of this section, any loan or other credit arrangement providing for a chattel mortgage or secured interest in any proposed cellular system must include a provision for a minimum of ten (10) days prior written notification to the licensee, and to the FCC, before any such equipment may be repossessed under default provision of the agreement.

(g) Competing applications in cellular renewal proceedings. Initial cellular applications that are competing against a cellular renewal application are subject to the rules in this paragraph instead of the rules in paragraphs (a) through (f) of this section.

(1) Any applicant filing a competing application against a cellular renewal application must demonstrate, at the time it files its application, that it has either:

(i) A firm financial commitment, an irrevocable letter of credit or performance bond in the amount of its realistic and prudent estimated costs of construction and any other expenses to be incurred during the first year of operating its proposed system (the irrevocable letter of credit or performance bond must be from the type of financial institution described in paragraph (g)(3) of this section); or,

(ii) Available resources, as defined in paragraph (g)(4) of this section, necessary to construct and operate its proposed cellular system for one year.

(2) The firm financial commitment may be contingent on the applicant obtaining an authorization. The applicant must also list all of its realistic and prudent estimated costs of construction and any other expenses to be incurred during the first year of operating its proposed system.

(3) The firm financial commitment required above shall be obtained from a state or federally chartered bank or savings and loan association, another recognized financial institution, or the financial arm of a capital equipment supplier; shall specify the terms of the loan or other form of credit arrangement, including the amount to be borrowed, the interest to be paid, the amount of the commitment fee and the fact that it has been paid, the terms of repayment and any collateral required; and shall contain a statement:

(i) That the lender has examined the financial condition of the applicant, including audited financial statements where applicable, and has determined that the applicant is creditworthy;

(ii) That the lender has examined the financial viability of the proposal for which the applicant intends to use the commitment;

(iii) That the lender is committed to providing a sum certain to the particular applicant;

(iv) That the lender's willingness to enter into the commitment is based solely on its relationship with the applicant; and,